

**ATM User Requirements  
Document (URD)  
Volume 2**

**FCO.ET1.ST04.DEL01**

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# DOCUMENT IDENTIFICATION SHEET

## DOCUMENT DESCRIPTION

### Document Title

ATM User Requirements Document (URD)  
Volume 2

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FCO.ET1.ST04.DEL01

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### Abstract

The User Requirements Document (URD) documents the ATM Stakeholder Needs expressed by the Aviation Community during user consultation workshops held by EUROCONTROL in 1994 and 1998. These statements have been used as input to the development of the ATM Target Concept and the ATM Strategy for 2000+.

Volume 2 is a reference document, permitting access to information in a variety of ways. The material presented here contains detailed statements, which are appropriately configuration controlled and linked to other material with a variety of traceability relationships. For a compact summary please refer to Volume 1.

### Keywords

EATCHIP, Stakeholder Needs, User consultation, Traceability, Services, Requirement Themes, Strategic Principles, Strategic Objectives, Enabling Objectives, Targets, Trade-off Topics

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The following table identifies all management authorities who have successively approved the present issue of this document.

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**DOCUMENT CHANGE RECORD**

The following table records the complete history of the successive editions of the present document.

<b>EDITION</b>	<b>DATE</b>	<b>REASON FOR CHANGE</b>	<b>SECTIONS PAGES AFFECTED</b>
1.0	6 Sep. 1995	First released issue	All
2.0 draft A	7 July 1998	First working draft of ed. 2.0, for general review	All
2.0 draft B	1 September 1998	Second working draft of ed. 2.0, for general review	All
2.0 Proposed	15 October 1998	Proposed Issue, for review by CSDT	All
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## **FOREWORD**

The User Requirements Document (URD) documents the ATM Stakeholder Needs expressed by the Aviation Community during user consultation workshops held by EUROCONTROL in 1994 and 1998. These statements have been used as input to the development of the ATM Target Concept and the ATM Strategy for 2000+.

Edition 1.0 of this document was published in 1995. This update brings the document in line with the latest developments.

Volume 2 is a reference document, permitting access to information in a variety of ways. The material presented here contains detailed statements, which are appropriately configuration controlled and linked to other material with a variety of traceability relationships. For a compact summary please refer to Volume 1.

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## EXECUTIVE SUMMARY

The User Requirements Document (URD) documents the ATM Stakeholder Needs expressed by the Aviation Community during user consultation workshops held by EUROCONTROL in 1994 and 1998. These statements have been used as input to the development of the ATM Target Concept and the ATM Strategy for 2000+.

Volume 1 of the URD contains summaries only, and is intended to familiarise the reader with the body of knowledge acquired during the stakeholder consultation process. More detail — as well as formal traceability and configuration control — can be found in Volume 2.

Reflecting a process of stakeholder consultation, the statements in this document have not been interpreted as precisely worded 'requirements' in the strict (committing) sense of the word, but rather as high level material to be taken into account to maximise stakeholder satisfaction in the continued development of ATM in Europe. Compared with edition 1.0 of the document, the new EATCHIP terminology is now used whereby the broader term 'stakeholder' is preferred over the word 'user', and the statements are now called 'Stakeholder Needs' rather than 'requirements'.

In 1994 the workshop participants particularly emphasized the the need for:

- developing ATM as a network for "gate-to-gate" operation, i.e. covering all phases of a flight. This implies a strong consideration of measures to enhance airport capacity;
- continuous involvement of ATM stakeholders in the planning process;
- basing the development and implementation planning on the rigorous application of Cost-Benefit Analysis using commonly agreed analysis principles and data. Implementation of future airborne capabilities should be based on benefit driven incentives for the users rather than merely mandating;
- ensuring the interoperability of the European ATM network with adjacent areas, allowing homogeneous traffic flows and non-discriminatory access of aircraft operators based outside the ECAC area. ATM technologies and procedures must adhere to future ICAO Standards and Recommended practices. Users encourage European States to pro-actively contribute to the development of ICAO Standards for future CNS/ATM systems;
- delivery of various levels of service as requested by individual users. European ATM must be flexible enough to allow operation ranging from certain kinds of VFR traffic requiring no service at all up to aircraft operations requiring full ATM services. Additionally, European ATM must cater for different levels of capability of airborne equipment;
- supporting the aircraft operator's responsibility for the conduct of safe and efficient flight operations. This implies that the final decision on the acceptance of clearances or planned trajectories remains with the aircraft operator and that ATM has no access to flight control systems, e.g. Flight Management Systems, without active control by the flight crew;
- supporting flexible, dynamic adjustment of aircraft trajectories to the optimum rather than inflexible deterministic pre-planning of trajectories in order to enhance the efficiency of flight operations;

- improved availability and increased accuracy of meteorological data required for flight and trajectory planning;
- insuring handling of specific defence flights subject to various constraints.

The February 1998 workshop largely confirmed the stakeholder needs recorded some three years earlier. The main messages were the following:

- the future ATM system had to be based on a benefit-driven approach supported by clear business cases and must incorporate measurable performance targets;
- safety was paramount and the need to improve safety levels in the face of increasing demand must be emphasised;
- environmental gains, together with any associated environmental related penalties, must be clearly spelt out in the Strategy;
- the right of access to airspace for all users must be a central objective;
- greater emphasis had to be placed on the need to increase airport capacity and airport and en-route capacity gains had to be balanced and remain in step if the full benefits of future investments were to be realised;
- collaborative decision making based on improved planning procedures and information management was an important key to a more efficient, flexible and effective ATM network and needed to be applied at both the strategic and tactical levels;
- the human, both in the air and on the ground, would remain an essential part of the ATM network for the foreseeable future and this had to be taken into account in the early design stages of the enabling systems and infrastructure;
- increasing the productivity of the air traffic controllers through the extensive use of computer support tools was a critical factor in finding the extra capacity needed;
- airspace management measures needed to be more ambitious and applied by all States. A 'Schengen' approach was needed;
- ATFM had to incorporate flexible capacity management and include consideration of gate-to-gate operations;
- Communications, Navigation and Surveillance systems had to be developed within a single coherent framework to more aggressive timescales;
- the role of essential services such as meteorology and AIS had to be recognised and statements concerning national defence needs and military requirements strengthened and expanded;
- implementation management mechanisms had to be clearly defined and rigorously enforced;
- R & D activities needed to support the strategy had to be identified and prioritised.

## 1. INTRODUCTION

### 1.1 Background and History of EATCHIP Stakeholder Consultation

The *ECAC En-route Strategy of the 1990's* laid the foundation for the *European ATC Harmonisation and Integration Programme* (EATCHIP):

- Phase I: appraisal and evaluation of ATM in Europe, completed by mid-1991;
- Phase II: development of the EATCHIP Programme, completed by mid-1993;
- Phase III: acquisition and implementation, aiming at *harmonisation* of ATM, completed in 1998;
- Phase IV: planning and implementation of the future European ATM network, aiming at *integration* of ATM. This activity started in parallel with earlier phases and is further detailed below.

Following MATSE/3 in 1992, work for the definition of a concept for future European ATM was undertaken. It considered an evolutionary transition towards the future European ATM network and, around the year 2015, achievement of full operational capability, i.e. marking the completion of the transition towards the *Target Concept*.

From the outset, the development of the future European ATM network was approached in a top-down and customer/user oriented fashion.

The EUROCONTROL Agency started the process internally in 1993 with the development of an initial high level vision of where ATM in Europe should be in the year 2015. After extensive review by stakeholder representatives in the EATCHIP organisation (EATCHIP Teams, Liaison Officers and Project Board), this was published as the *Mission, Objectives and Strategy Document* (MOSD) early 1995.

Around the same time, the consultation was widened: EUROCONTROL and the European Commission sent an open invitation to all segments of the aviation community to attend a *User Requirements Workshop*: 150 delegates gathered for three days in Brussels in September of 1994, to discuss their future needs. The results of this workshop were processed by a smaller group of aviation community representatives. This culminated in the publication of the first edition of the *User Requirements Document* (URD) in September of 1995.

This URD was subsequently analysed as part of an EC 4th Framework Programme study (ADORA).

The knowledge acquired at that stage was used to develop the *Target Concept* for the year 2015, published in the first edition of the *Operational Concept Document* (OCD) in March 1997. This was again conducted in an open and collaborative spirit: the concept was developed by a task force comprising representatives from the airspace users, service providers and other segments of the aviation community. For consultation purposes, the document was given wide circulation in the aviation industry during its final drafting stages. Edition 1.0 of the OCD also contained first ideas about the sequence of improvements making up the *Road Map* for transition.

In order to tackle the challenges of the 21st century, new ideas were also being progressed on the institutional front. This led to the adoption of a new ECAC ATM Institutional Strategy by Transport Ministers in 1997, and a Revised Convention for EUROCONTROL. At the same time, Ministers requested a proposal for a comprehensive, gate-to-gate orientated, ATM strategy for the years 2000+ to be considered at their next meeting in 1999.

Meanwhile, the ATM scene had continued to evolve in the years since the inception of the EATCHIP programme. In 1996 EUROCONTROL management started a process of *EATCHIP Alignment* which in particular led to the following results:

- Confirmation of the need for a *gate-to-gate* approach of future ATM and definition of what this term implies.
- Precursor activity for the development of the *ATM Strategy for 2000+*.
- Proposals to improve the EATCHIP programme management to better meet user needs, including a segmentation model of ATM stakeholders.

As an interim measure, an initial version of the Strategy was developed by an internal EUROCONTROL team as a vehicle for consultation with the aviation community about how ATM in Europe should develop into the next century. In consultation with the ECAC DGCA's, the DG EUROCONTROL then set up a Strategy Board, drawn from the senior management representing the aviation stakeholders, and professional and international organisations, to continue the development of the Strategy proposal for Ministers.

As part of the continuing consultation process, EUROCONTROL held an *ATM 2000+ Workshop* in Luxemburg in early 1998 to explain the Strategy and Target Concept proposals and obtain feedback from the wider aviation community. The results of that feedback have been incorporated in later editions of the Strategy and Concept documents.

The above history of events demonstrates that EATCHIP stakeholder consultation is an ongoing process which permeates the development of ATM in Europe at all levels, and is in no way limited to the documentation of Stakeholder Needs in a single document, i.e. the URD.

## 1.2 Purpose of this Document

The planning process being introduced to support the development of uniform European Air Traffic Management implies regular updates of the basic documentation containing the data from which the plans are derived. With the planned adoption of the *ATM Strategy for 2000+* by the ECAC Transport Ministers in 1999, it is now appropriate to issue a new version of related documents such as the URD.

Many of the messages contained in URD 1.0 have already found their way into today's thinking about the future of ATM in Europe, and are reflected in follow-on documents, notably the OCD and the ATM Strategy for 2000+.

When faced with the task of producing an up-to-date version of the URD, an approach was sought which would bring added value to the first version. The aims are:

- to address the main shortcoming of the first edition: "that the list of stakeholder needs is not *directly* useable for more detailed work";
- to keep a connection (traceability) between the two editions;
- to provide the EATCHIP stakeholders with an indication of how the contents of URD 1.0 have been taken into account;
- to keep those stakeholder need statements which (still) need to be addressed by future work documented and thus available to the EATCHIP participants.

For these reasons, it was decided to keep the text of the original URD Volume 2 statements in an unabridged, unmodified form, and to bring added value by:

- changing the titles of stakeholder needs to better reflect the underlying content
- adding the key messages of the 1998 user consultation workshop
- adding traceability, i.e. showing how these statements are currently being (or need to be) taken into account by EATCHIP. This is done by cross-referencing the Stakeholder Needs to more recent work: elements of the ATM Strategy for 2000+, with subsequent traceability to the Target Concept described in the Operational Concept Document (OCD).

## 2. STRUCTURE OF THE DOCUMENT

### 2.1 Overview of Contents

For practical reasons, the document is published in several volumes:

## **VOLUME 1**

**Section 1** discusses background and history of EATCHIP Stakeholder Consultation. It also explains the purpose of the URD.

**Section 2** shows how the document is structured, and explains how configuration management and traceability is handled.

**Section 3** provides a summary of the stakeholder needs as they were recorded during 1994. This part of the document is identical to the material published in sections 2-7 of URD edition 1.0 Volume 1.

**Section 4** summarises the results from the ATM 2000+ Workshop held in Luxemburg during February 1998. The material is extracted from the workshop proceedings.

**Section 5** points interested readers to other work in the area of ATM stakeholder needs.

## **VOLUME 2**

Volume 2 is a reference document, permitting access to information in a variety of ways. The material presented here contains detailed statements, which are appropriately configuration controlled and linked to other material with a variety of traceability relationships.

**Chapter 1** introduces the subject by briefly describing the official EATCHIP stakeholder segmentation model (developed during the EATCHIP Alignment & Adaptation Process, documented in the EATCHIP Management Handbook).

**Chapter 2** lists the Stakeholder Needs in terms of Air Navigation Services. The chapter is included for the convenience of the reader. It is basically the same presentation as in edition 1.0 of the URD (Volume 2).

**Chapter 3** groups the Stakeholder Needs by 'Theme'; a categorisation which is largely based on the 'Special Subjects' requirement classification of edition 1.0 (see ed. 1.0 Volume 2, pages B-6 and B-7). The taxonomy of 'themes' includes issues such as safety, capacity, flexibility, integration etc. Notice that this classification is closely related to (but wider in scope than) the strategic principles and objectives contained in the ATM Strategy for 2000+.

**Chapter 4:** Whereas the previous chapters contain only references to *titles* (summaries) of Stakeholder Needs, Chapter 4 is a **dictionary** containing the *complete text* and *traceability relationships* of all Stakeholder Needs, alphabetically ordered by title.

## 2.2 How Configuration Management and Traceability is handled

The contents of URD Volume 2 are stored in a general purpose 'knowledge base', which serves to keep track of large quantities of information entities and complex webs of information interrelationships. At present, this 'Strategy, Concept & System Knowledge Base (edition 2.01)' contains approximately 850 information entities interconnected by a traceability web of over 3000 relationships. The data is entered, analysed and manipulated via a tool called *Entity Relationship Analysis Tool* (ERAT), developed within EUROCONTROL. Advanced reporting capabilities allow to analyse these relationship webs and output the result in user friendly (document-like) formats such as URD Volume 2, or HTML format with hypertext links.

The selection and presentation of information in Volume 2 has been chosen to suit the needs of the URD best. However differently structured reports based on the same data can easily be provided upon request.

## 2.3 Detailed Information Structure of Volume 2

Being extracted from the Knowledge Base, the Annex to this document is characterised by full relational integrity, in that it contains extensive cross-referencing. While reading a particular chapter, the reader will easily find all related information in the other chapters.

All items (entities) in the URD can be referred to by title (e.g. 'Airspace Users', 'Safety Principle' etc.) but are uniquely identified by a type designation (e.g. 'Stakeholder Need', 'Stakeholder', 'Objective' etc.) and a serial number (e.g. #125). The complete identifier is a combination of the two (e.g. 'Stakeholder Need#125'). Please use these identifiers when submitting comments to the document.

The serial numbers are computer generated and no significance should be attributed to the order in which items are labelled, with one exception: for traceability reasons, the numbering of 'Stakeholder Needs' is identical to the numbering of 'Requirements' in URD 1.0 (e.g. 'Stakeholder Need#125' is the same as 'R.0125' in URD 1.0). Both documents contain index lists to enable the reader to find the locations at which the items appear.

Stakeholder Needs with serial numbers up to and including #512 were recorded at the 1994 workshop (i.e. are traceable to URD 1.0); the ones with numbers #513 and above represent conclusions from the 1998 workshop.
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Each of the chapters in this document consists of three parts:

- Table of contents for that chapter;
- Index<sup>1</sup> of all items appearing in the chapter, with pointers to the paragraph(s) in which the items appear;
- Body of the chapter, containing all descriptive text.

In addition to descriptive text, each chapter body contains selected relationships, pointing the reader to relevant information in other chapters.

## **2.4 Status of Edition 2.01 of the Strategy, Concept & System Knowledge Base**

This knowledge base (KB) originated in 1995, in support of the URD 1.0 development activity. Today, it contains information extracted from several deliverables of the EATCHIP/EATMP Strategy, Concept & System Development process. A limited subset of this information is published as URD Volume 2 edition 2.0.

Specifically, this knowledge base contains:

- From the EATCHIP Management Handbook (edition December 1998): the ATM stakeholder segmentation model;
- From the URD 2.0: stakeholders needs categorised by stakeholder, Air Navigation Service and theme; with traceability to the ATM 2000+ Strategy;
- From the ATM 2000+ Strategy (edition November 1998): the overall and strategic objectives, strategic principles, performance targets, trade-off topics, core ATM processes, Lines of Action, operational improvements, implementation objectives (approximate dates & applicability); with traceability to enablers, stakeholder needs and a first draft of traceability links to concept elements;
- From the OCD 1.0: the concept elements with a first draft of traceability links to the ATM 2000+ Strategy.

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<sup>1</sup> Sorted by serial number in ascending order



## **ANNEX 1**

# **SELECTED PRINT-OUTS FROM THE KNOWLEDGE BASE**

<b>CHAPTER 1 .....</b>	<b>STAKEHOLDER SEGMENTATION</b>
<b>CHAPTER 2 .....</b>	<b>STAKEHOLDER NEEDS BY SERVICE</b>
<b>CHAPTER 3 .....</b>	<b>STAKEHOLDER NEEDS BY THEME</b>
<b>CHAPTER 4 .....</b>	<b>ALPHABETICAL LIST OF STAKEHOLDER NEEDS WITH TRACEABILITY</b>

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1.1.2	Certification Authorities	<i>Stakeholder#9</i>
1.1.3	Standardisation Organisations	<i>Stakeholder#10</i>
1.1.4	Accident/Incident Investigation Authorities	<i>Stakeholder#11</i>
1.1.5	Other Regulatory Authorities	<i>Stakeholder#12</i>
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1.2.2	The OAT (Operational Air Traffic) Airspace User Community	<i>Stakeholder#14</i>
1.2.3	The UAV Operator Community (civil and military)	<i>Stakeholder#23</i>
<b>1.3</b>	<b>The Airport Community</b>	<i>Stakeholder#4</i>
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1.5.2	ATM Service Providers	<i>Stakeholder#16</i>
<b>1.6</b>	<b>The Support Industry</b>	<i>Stakeholder#7</i>
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## URD Chapter 1

# ATM STAKEHOLDERS - INDEX

### Stakeholder

*ATM stakeholder, user group etc. as defined in the BMUN Report ed. 1.0*

#1	The Aviation Industry	1
#2	Regulatory Authorities	1.1
#3	Airspace Users	1.2
#4	The Airport Community	1.3
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#9	Certification Authorities	1.1.2
#10	Standardisation Organisations	1.1.3
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#21	GA (General Aviation)	1.2.1.2
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#23	The UAV Operator Community (civil and military)	1.2.3

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## URD Chapter 1

# ATM STAKEHOLDERS - DESCRIPTION

## 1 The Aviation Industry

Stakeholder#1

### Description:

The totality of ATM stakeholders in the Aviation Industry comprises the following sectors:

- Regulatory Authorities
- Airspace Users
- The Airport Community
- Airspace Providers
- CNS/ATM Service Providers
- The Support Industry

Important note: In the traditional institutional model the 'National Administrations' were covering all of the following: regulatory authority, airspace provider and CNS/ATM service provider. In view of the current institutional trends and the de facto differences in legal and operational responsibility, the segmentation of ATM stakeholders does not consider 'National Administrations' as a separate sector, but recognises the underlying responsibilities as separate sectors (i.e. regulatory authority, airspace provider and CNS/ATM service provider).

### Includes:

- 1 Regulatory Authorities
- 2 Airspace Users
- 3 The Airport Community
- 4 Airspace Providers
- 5 CNS/ATM Service Providers
- 6 The Support Industry

Relationship#28

Stakeholder#2

Stakeholder#3

Stakeholder#4

Stakeholder#5

Stakeholder#6

Stakeholder#7

## 1.1 Regulatory Authorities

Stakeholder#2

### Description:

Regulatory authorities are responsible for certain aspects of the overall performance of the Aviation Industry. For example safety. They plan the performance through safety standards, certification etc., and monitor the results (accident/incident investigation and statistics). They are the final feedback loop at the legal level.

EATCHIP should be interfacing with this sector in areas such as safety management, certification, standardisation and air traffic data collection.

### Includes:

- 1 Aviation Safety Regulators
- 2 Certification Authorities
- 3 Standardisation Organisations
- 4 Accident/Incident Investigation Authorities
- 5 Other Regulatory Authorities

Relationship#28

Stakeholder#8

Stakeholder#9

Stakeholder#10

Stakeholder#11

Stakeholder#12

1.1.1      **Aviation Safety Regulators**      *Stakeholder#8*

1.1.2      **Certification Authorities**      *Stakeholder#9*

1.1.3      **Standardisation Organisations**      *Stakeholder#10*

1.1.4      **Accident/Incident Investigation Authorities**      *Stakeholder#11*

1.1.5      **Other Regulatory Authorities**      *Stakeholder#12*

1.2      **Airspace Users**      *Stakeholder#3*

**Description:**

The term 'Airspace Users' mainly refers to aircraft operators. They are traditionally subdivided into civil and military airspace users. In view of the relevance to ATM, the EATCHIP stakeholder segmentation model takes a different approach -- subdivision according to operating mode:

- ICAO compliant manned flight operations (GAT -- General Air Traffic)
- ICAO non-compliant manned flight operations (OAT -- Operational Air Traffic)
- Flight operations of Unmanned Aerial Vehicles (UAVs)

All civil air traffic operates as GAT; part of the military traffic as OAT; and some military traffic as GAT.

A last and really new segment of airspace users is the UAV community, comprising not only military UAVs, but also civil application of UAV technology.

EATCHIP should consider this sector as the main 'End User' of ATM services'; as the party which has the highest level of interest in the successful achievement of the mission of the ATM 2000+ Strategy.

**Includes:**

- |   |                        |
|---|------------------------|
| 1 The GAT (General Air Traffic) Airspace User Community     | <i>Relationship#28</i> |
| 2 The OAT (Operational Air Traffic) Airspace User Community | <i>Stakeholder#13</i>  |
| 3 The UAV Operator Community (civil and military)           | <i>Stakeholder#14</i>  |
|   | <i>Stakeholder#23</i>  |



## 1.2.1 The GAT (General Air Traffic) Airspace User Community

Stakeholder#13

### Description:

The GAT (General Air Traffic) airspace user community includes all those who are using the airspace in accordance with ICAO provisions. It includes a certain subset of military airspace users (e.g. military air transport operations), other governmental flight operations (e.g. state aircraft such as police), and all civil aircraft operators, i.e. those engaged in commercial air transport (passenger, mail and cargo services), aerial work, and general aviation (including business aviation, private air transport, sporting and recreational aviation).

Examples: pilots, aircraft, aircraft operators, associations, etc.

### Includes:

- |   |                 |
|---|-----------------|
| 1 Commercial Air Transport (Airlines)             | Relationship#28 |
| 2 GA (General Aviation)                           | Stakeholder#20  |
| 3 Governmental GAT (state aircraft flying as GAT) | Stakeholder#21  |
|   | Stakeholder#22  |

### 1.2.1.1 Commercial Air Transport (Airlines)

Stakeholder#20

#### Description:

Commercial Air Transport, often casually referred to as 'the Airlines', is a segment of the GAT (General Air Traffic) airspace user community. It comprises civil aircraft operators engaged in scheduled as well as unscheduled commercial air transport, i.e. passenger, mail and cargo services.

Air Taxi Operators are considered part of General Aviation.

### 1.2.1.2 GA (General Aviation)

Stakeholder#21

#### Description:

General Aviation (in the broad sense of the word) is the segment of the GAT (General Air Traffic) airspace user community which comprises civil aircraft operators engaged in commercial as well as non-commercial operations:

- aerial work
- business aviation
- air taxi
- private air transport
- sporting and recreational aviation

### 1.2.1.3 Governmental GAT (state aircraft flying as GAT)

Stakeholder#22

#### Description:

The governmental GAT (General Air Traffic) airspace user community includes a certain subset of military airspace users flying frequently in civil airspace (e.g. military air transport operations), as well as other governmental flight operations (e.g. state aircraft such as police).

## 1.2.2 The OAT (Operational Air Traffic) Airspace User Community

Stakeholder#14

### Description:

The OAT (Operational Air Traffic) airspace user community includes all those who are engaged in national security and public services and operate their aircraft in ICAO non-compliant modes.

Examples: fighter/bomber type aircraft, their pilots, operational units, administrations (e.g. MoD), NATO, etc.

## 1.2.3 The UAV Operator Community (civil and military)

Stakeholder#23

### Description:

UAVs (Unmanned Aerial Vehicles, formerly known as 'drones' or RPVs -- remotely piloted vehicles) have been in the realm of military operations and recreation (model flying) since more than 50 years. Only in the last decade or so, has there been an interest to apply this technology in civil airspace for various kinds of aerial work. In many cases, UAV technology is seen as a more cost effective solution than the use of conventional airplanes or helicopters. Sometimes it is simply safer, or the only possible way to get the job done. The UAV Industry is convinced that there is a (non-military) market out there. Unfortunately, up to now UAVs didn't mix very well with other air traffic. In the past, the ATM community has always assumed that UAVs were a military phenomenon which would be flying in reserved airspace only. The requirement for non-segregated operations of civil UAVs is totally new. No regulatory framework exists as of today.

A brief overview of the kind of vehicles produced by the UAV industry:

Classification according to control method:

- remotely piloted UAVs: more or less continuous control via some kind of data link
- autonomous or robotic UAVs: mission can be programmed in advance, with possibility to uplink trajectory changes during flight; adaptive navigation (e.g. automatic distance keeping from poles during powerline inspection); advanced designs use artificial intelligence
- combination of both (e.g. switches to autonomous mode if datalink is lost; take-off and landing without pilot in the loop)

Classification according to make and performance:

- micro UAV (15-30 cm wingspan; military applications (electronic warfare); DARPA R&D programme underway)
- small lightweight shortrange (typically looking like 'oversized model aircraft', flying saucers; miniature helicopters etc.)
- production aircraft converted to fly (optionally) without pilot (e.g. F16, Cessna O-2, helicopters)
- high-altitude long endurance long range UAVs -- up to FL 650, 40 hrs, range 25000 km (!)

## 1.3 The Airport Community

Stakeholder#4

### Description:

The Airport Community comprises the parties involved in the provision of physical infrastructure for take-off, landing and ground handling of aircraft.

Examples: airports, airport authorities, associations (e.g. ACI), etc.

EATCHIP should be interfacing with this sector as part of its efforts to achieve the gate-to-gate objective.

## 1.4 Airspace Providers

Stakeholder#5

### Description:

The term airspace provider refers to the States (in their capacity of airspace owners with the legal authority to allow or deny access to airspace) and their associations (ICAO, ECAC, the EUROCONTROL Organisation, etc.). Think of issues such as airspace sovereignty, diplomatic clearance, national security (air defence) requirements etc.

EATCHIP should be interfacing with this sector as part of its efforts to resolve all the institutional roadblocks which prevent the programme from achieving the mission of the ATM 2000+ Strategy.

## 1.5 CNS/ATM Service Providers

Stakeholder#6

### Description:

The CNS/ATM Service Providers comprise all those who are engaged in the planning and provision of CNS/ATM Services.

Examples: controllers, control centres, public and privatised national ATS providers, ground and space based communication navigation and surveillance systems and their operators (e.g. INMARSAT, SITA), corresponding associations, EUROCONTROL, ECAC, etc.

EATCHIP should be interfacing with this sector as part of its efforts to turn the European CNS/ATM infrastructure into an integrated, efficient multi-provider system, while taking due account of the needs of individual CNS/ATM providers.

### Includes:

- 1 CNS Service Providers
- 2 ATM Service Providers

Relationship#28

Stakeholder#15

Stakeholder#16

### 1.5.1 CNS Service Providers

Stakeholder#15

## 1.5.2 ATM Service Providers

Stakeholder#16

## 1.6 The Support Industry

Stakeholder#7

### Description:

The Support Industry comprises all those who provide services and products specifically supporting the development and operation of the Aviation Industry.

In particular, the Support Industry includes:

- The information service providers (e.g. MET services)
- The equipment manufacturers
- The R&D community

EATCHIP should be interfacing with this sector to ensure that the plans, strategies, products and services of this sector fit well with the roadmap for the future of European ATM that is being established by the programme.

### Includes:

Relationship#28

- 1 Information Service Providers
- 2 Equipment Manufacturers
- 3 The R&D Community

Stakeholder#17

Stakeholder#18

Stakeholder#19

## 1.6.1 Information Service Providers

Stakeholder#17

### Description:

The information service provider community includes all those non-ATS providers who are engaged in the collection and dissemination of air navigation related information of an operational nature. This includes environmental information (maps, navigation databases etc.), ground, airborne and space based weather observation and aviation weather forecasting.

Examples: weather forecasters, met offices, the WMO, companies such as Jeppesen, etc.

## 1.6.2 Equipment Manufacturers

Stakeholder#18

### Description:

The equipment manufacturers include all those who are engaged in the development, production and marketing of equipment used by airspace users, airports, CNS/ATM providers, MET service providers, etc.

Examples: airframe manufacturers, avionics manufacturers, engine manufacturers, ATC equipment manufacturers, satellite manufacturers, computer industry, telecom industry, system integrators, industry associations (e.g. AECMA), etc.

### 1.6.3 The R&D Community

*Stakeholder#19***Description:**

The R&D community includes all those engaged in the planning, funding and execution of R&D aimed at progressing the state of the art in the field of aviation.

Examples: researchers, R&D establishments, R&D departments in industry, organisations funding and/or managing R&D programmes.

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## URD Chapter 2

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## URD Chapter 2

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## URD Chapter 2

# AIR NAVIGATION SERVICES - DESCRIPTION

## 2 Air Navigation Services

Service#1

### Includes:

Relationship#28

- 1 Air Navigation Systems Planning & Development
- 2 ATS (Air Traffic Services)
- 3 Third Party Coordination

Service#2

Service#3

Service#24

### Service Needs to Address:

Relationship#10

ATM improvements should only be introduced after careful risk mitigation

Stakeholder Need#499

Collaborative decision making based on improved planning procedures and information management is an important key to a more efficient, flexible and effective ATM system

Stakeholder Need#518

Collaborative decision making based on improved planning procedures and information management needs to be applied at both the strategic and tactical levels

Stakeholder Need#519

Safety is paramount and the need to improve safety levels in the face of increasing demand must be emphasised

Stakeholder Need#514

The evolution of the cost and quality of ATM services should be driven by the requirement not to impair the competitiveness of the European air transport industry

Stakeholder Need#368

The future ATM system has to be based on a benefit-driven approach supported by clear business cases and must incorporate measurable performance targets

Stakeholder Need#513

The intermodal transport system in Europe should be optimised for the travelling public in terms of travelling time, cost and environmental impact

Stakeholder Need#300

The right of access to airspace for all users must be a central objective

Stakeholder Need#516

## 2.1 Air Navigation Systems Planning & Development

Service#2

### Service Needs to Address:

Relationship#10

A defined CNS/ATM transition period should be established.

Stakeholder Need#295

Detailed technical input to identify redundant equipment will be necessary to ensure national cost bases are reduced accordingly

A mechanism for the resolution of conflicts of interest, when there are clearly identified conflicting requirements, must be established

Stakeholder Need#26

ATM services should be seamless from the users' point of view.

Stakeholder Need#416

There should be a clear distinction between the responsibilities of governments and the management of the ATM system

CNS systems for wholly aviation use should be avoided where possible, this will allow costs to be shared by all users. Cost recovery should occur as benefits are received	Stakeholder Need#293
Cockpit Human Factors should be duly taken into account during the continued evolution of ATM	Stakeholder Need#74
Communications, Navigation and Surveillance systems have to be developed within a single coherent framework to more aggressive timescales	Stakeholder Need#524
Data coming from adjacent areas should be processable by the European ATM network in order to provide a seamless transition of flights. This should be on the basis of ICAO standards	Stakeholder Need#394
Decisions on mandating retrofit of airborne equipment capabilities must be based on cost/benefit analysis	Stakeholder Need#492
Due to mutual interdependencies, careful consideration of the implementation order for ATM and met. services is needed	Stakeholder Need#278
Due to the need for human acceptance, there must be a stepwise introduction of automation, rather than a big-bang transition	Stakeholder Need#315
ECAC should analyse its ground transition improvement plans and ensure that they will not create new problems in adjacent areas. The airborne ATM elements should be standardised on a global level	Stakeholder Need#237
Environmental gains, together with any associated environmental related penalties, must be clearly spelt out in the Strategy	Stakeholder Need#515
European ATM improvements should occur in a regulatory framework duly related to ICAO, while making provisions for the different (most likely slower) pace at which the ICAO annexes are updated	Stakeholder Need#448
Groundworthiness certification is becoming an issue because with A/G datalink, the ground system is increasingly to be considered as an extension of the avionics	Stakeholder Need#309
Implementation management mechanisms have to be clearly defined and rigorously enforced	Stakeholder Need#526
Lead times and pre-notification for mandating new airborne capabilities need to ensure the availability of the equipment incl. certification, and sufficient time for installation and training	Stakeholder Need#494
Legal liability issues must be clarified as a prerequisite to adding more automation	Stakeholder Need#317
Mandating avionic capabilities must be on the basis of global standards in order to cater for the interoperability of aircraft flying into or coming from regions outside Europe	Stakeholder Need#377
Mandating should be in terms of capabilities and not in terms of equipment	Stakeholder Need#375
Mandatory capabilities at certain locations are accepted if a clear plan is available and adequate C/B ratio benefits have been demonstrated	Stakeholder Need#376
Need for a common Cost/Benefit methodology and application of common C/B principles to the entire ECAC area	Stakeholder Need#409
Need for milestones which bring clear benefits	Stakeholder Need#408
Need for proper user guidance, public funding and professional implementation management for accelerated standardization and certification of available CNS technologies	Stakeholder Need#460
Need for the application of common Cost/Benefit Analysis principles throughout the ECAC area	Stakeholder Need#502

Need for timely availability of data exchange standards	Stakeholder Need#501
Need for User-segmented Cost/Benefit analysis, because the 'average' user does not exist and hence overall C/B ratios are not relevant	Stakeholder Need#410
Pre-operational field trials should be encouraged on local, national and regional levels to the benefit of the future European ATM network	Stakeholder Need#241
R & D activities needed to support the Strategy have to be identified and prioritised	Stakeholder Need#527
Standards for additional capabilities (equipment) for airspace compatibility should be urgently established so that they can be factored in the current designs of UAVs	Stakeholder Need#333
The ATM transition plan should be coordinated with the aircraft operator plans, such that new airborne capabilities are matched by corresponding ground system functionality in the same time frame	Stakeholder Need#374
The combination of equipage requirements and benefits should be such that operators are naturally invited to upgrade. This is preferred over the method of imposing or mandating equipment/capabilities	Stakeholder Need#373
The control capacity at and around airports should not act as a constraint on an airport schedule	Stakeholder Need#330
The development of a strategy and transition path towards the Target Concept needs to be done cooperatively between service providers and airspace users	Stakeholder Need#407
The human will remain an essential part of the ATM system for the foreseeable future and this has to be taken into account in the early design stages of the enabling systems and infrastructure	Stakeholder Need#520
The users see a need to provide a 'pull' strategy to provide the incentive for the shortest transition period possible (simultaneous support of old and new functionality)	Stakeholder Need#38
The users want to see the ATM network to be cost efficient as a whole: the total cost of providing the whole set of services should be minimised, to keep the total cost base at a minimum	Stakeholder Need#326
There should be a clearly defined mechanism to ensure a continuous two-way dialogue with the users regarding the evolution of ATM	Stakeholder Need#328
Training and familiarisation must be possible in the ATM transition schedule	Stakeholder Need#406
User consultation is essential in order to achieve suitable retrofit schedules	Stakeholder Need#493
Users express the desire to implement the 4D profile communication capability via datalink early in the ATM transition schedule	Stakeholder Need#359

## 2.2 ATS (Air Traffic Services)

Service#3

### Includes:

Relationship#28

- |  |            |
|--|------------|
| 1 AIS, MET & Flight Plan Processing Services | Service#4  |
| 2 FIS (Flight Information Services)          | Service#8  |
| 3 CNS/ATM Services                           | Service#9  |
| 4 Alerting Services                          | Service#18 |
| 5 SAR (Search and Rescue)                    | Service#19 |
| 6 Post-Flight Services                       | Service#20 |

### Service Needs to Address:

Relationship#10

A flight must be seen by the ATM network as an integral coherent process, starting with strategic flight planning and ending after the completion of post-flight activities Stakeholder Need#512

Air taxi operators have the same requirements as corporate business aviation, but cost is a more critical factor Stakeholder Need#346

ATM should contain internal redundancies and reconfiguration capabilities as needed to deliver a normal quality of service under the circumstances of equipment failures, faults, human error, etc. Stakeholder Need#357

Availability levels of tactical safety-critical services should be designed around safety objectives; availability of non-safety critical services around C/B principles Stakeholder Need#218

Before introducing ATM improvements, new possibilities for system failure (in the broadest sense) must be identified, and it must be ensured that their occurrence cannot compromise flight safety Stakeholder Need#381

Corporate business aviation shares many requirements with commercial air transport Stakeholder Need#344

Future ATM should accommodate shared (non-segregated) use of airspace between civil (or military) Unmanned Aerial Vehicles (UAVs) and other commercial, military and general aviation traffic Stakeholder Need#269

GA needs indiscriminatory access to controlled airspace by aircraft with different performance levels, coupled with adequate C/B ratios, fair charging principles and ongoing ATM performance review Stakeholder Need#259

General Aviation expects a flexible, cost effective system with responsive capacity management, able to handle a large diversity of aircraft and performance levels Stakeholder Need#258

In case of ATM service degradation, airspace users want visibility i.e. knowledge on service quality expected, information about the degradation of ATM operations, ATC resources, means Stakeholder Need#358

Need to accommodate aerial work activities in all airspace Stakeholder Need#267

Pilots and controllers should have, at all times, precise knowledge of the nature, probability and extent of possible contingencies, and of the latest applicable contingency plans Stakeholder Need#312

Service provision should be personalised to the needs of each individual flight to a very high degree Stakeholder Need#303

The airspace users emphasize the need for improved availability of information, for the benefit of increased flight safety Stakeholder Need#383

The human (pilot/controller) should always be in a position to do a final check on the validity of information Stakeholder Need#386

The quality assurance of source data (navigation data, clearances etc.) is becoming a real flight safety issue Stakeholder Need#310

The services rendered by ATM should in principle not be compulsory but basically offered and be made available to all categories of users whenever they need them *Stakeholder Need#292*

The system should strike the right balance between robustness and fallback procedures *Stakeholder Need#311*

The system's resilience to service disruption must be at least the same as today *Stakeholder Need#15*

## 2.2.1 AIS, MET & Flight Plan Processing Services

*Service#4*

### Includes:

*Relationship#28*

- |   |                  |
|---|------------------|
| 1 AIS (Aeronautical Information Services) | <i>Service#5</i> |
| 2 MET (Weather Services)                  | <i>Service#6</i> |
| 3 Flight Plan Processing Services         | <i>Service#7</i> |

### Service Needs to Address:

*Relationship#10*

Airspace users have a basic requirement for up-to-date AIS/MET information and air traffic density forecast products prior to any flight operations *Stakeholder Need#61*

Certain services like AIS, MET, ARO should be integrated to improve the efficiency of these services to the users *Stakeholder Need#417*

Need for open access to information to increase airspace capacity for VFR traffic *Stakeholder Need#367*

Need for responsibility and liability regarding information quality assurance in AIS *Stakeholder Need#81*

Pre-flight information should be easily accessible to all airspace users, in ways which are tailored to the needs of each specific user group *Stakeholder Need#415*

The role of essential services such as meteorology and AIS has to be recognised and statements concerning national defence needs and military requirements strengthened and expanded *Stakeholder Need#525*

Users are looking for AIS/MET self-briefing facilities at all aerodromes and from home via personal computer through the Internet *Stakeholder Need#365*

Users desire fully automated facilities for direct, personal flight plan filing, available at all aerodromes and from home via personal computer through the Internet *Stakeholder Need#366*

### 2.2.1.1 AIS (Aeronautical Information Services)

*Service#5*

#### Service Needs to Address:

*Relationship#10*

Aircraft operators want highly up-to-date AIS information regarding the current status the Air Navigation System *Stakeholder Need#497*

AIS information should be enhanced with corresponding traffic (density) / congestion forecasts and flow restrictions *Stakeholder Need#496*

Need for a European AIS Database (EAD) *Stakeholder Need#348*

Need for advanced Information Management in AIS *Stakeholder Need#495*

Users want pre-coordinated contingency plans to take into account exceptional events such as weather, labour disputes, unforeseen breakdown of ATM system components, etc. *Stakeholder Need#413*

### 2.2.1.2 MET (Weather Services)

Service#6

#### Service Needs to Address:

Relationship#10

A number of terminal area weather parameters are to be forecasted and nowcasted

Stakeholder Need#337

Aircraft which cannot fly above the weather, or have poor navigation performance or de-icing, need special Met. information to compensate for this handicap

Stakeholder Need#489

Airspace users have a need for aviation weather forecasts four days ahead

Stakeholder Need#245

Airspace users require all relevant enroute weather parameters to be forecasted and nowcasted

Stakeholder Need#338

As nowcasting covers part of the needs for elaborating TAFs, special met. forecasts one day ahead are required for pre-tactical flight planning

Stakeholder Need#284

During tactical flight-planning, airspace users require highly up-to-date and accurate information on actual weather and forecast conditions

Stakeholder Need#246

For strategic flight planning purposes, aircraft operators wish access to climatological (statistical) information about enroute and surface (aerodrome) meteorological conditions

Stakeholder Need#469

Need for advanced Information Management in support of MET service provision

Stakeholder Need#243

Need for improved prediction of the onset, cessation and severity of significant weather phenomena at airports

Stakeholder Need#446

Sporting and recreational aviation has a need for special customised weather forecasts

Stakeholder Need#279

The wind errors in 18-24 hr forecasts should be reduced to meet the new flight planning accuracy requirements of the airspace users

Stakeholder Need#342

### 2.2.1.3 Flight Plan Processing Services

Service#7

#### Service Needs to Address:

Relationship#10

Aircraft operators want the flexibility to formulate and modify flight plans as late as possible

Stakeholder Need#472

Aircraft operators want, throughout the ECAC area, an exemption of the obligation to file a flight plan, for all VFR flights (including international VFR flights) which do not need an ATC clearance

Stakeholder Need#470

In future ATM, an enhanced Planned Flight Data (PFD) submission should obviate the need for strategic flight planning (RPL)

Stakeholder Need#473

It should be sufficient to send flight plans to a single address for dissemination as appropriate

Stakeholder Need#471

Some GA and Aerial Work users want to be able to fly without a flight plan for short haul trips (200-300 nm) between cities and for VFR flights which do not require clearances

Stakeholder Need#261

The ECAC area should be 'open' for all flights without internal artificial boundaries which require prior overflight permission to be obtained

Stakeholder Need#411

The procedures for completing and submitting flight plans should be simplified

Stakeholder Need#474



There should be no obligation to file ATS flight plans for cross-border flights conducted according to VFR within the EU *Stakeholder Need#264*

## 2.2.2 FIS (Flight Information Services)

*Service#8*

### Service Needs to Address:

*Relationship#10*

GA operators without weather radar desire the in-flight capability to receive graphical weather information via datalink *Stakeholder Need#260*

Nowcasts should be issued each 15-30 minutes *Stakeholder Need#336*

Users ask for a capability to provide Met. information to aircraft in flight via datalink *Stakeholder Need#424*

## 2.2.3 CNS/ATM Services

*Service#9*

### Includes:

*Relationship#28*

1 CNS services

*Service#10*

2 ATM (Air Traffic Management)

*Service#14*

### Service Needs to Address:

*Relationship#10*

At major airports, light fixed wing aircraft should be allowed to use STOL runways to avoid using the same runways as heavy fixed wing aircraft *Stakeholder Need#486*

ATM should be able to handle a mixture of aircraft equipment. However the lowest capability aircraft should not impose the Quality of Service (QoS) for all *Stakeholder Need#370*

Before introducing ATM changes, evidence must be available that capacity improves while at least maintaining the present flight safety levels *Stakeholder Need#464*

In future ATM, certain VFR operations should be possible with a minimum of equipment (e.g. not even VHF radio for gliders and microlights) *Stakeholder Need#421*

Mandating should be in terms of capabilities and not in terms of equipment (GA requirement) *Stakeholder Need#422*

Operating in the future ATM environment should be possible without special skills and ratings *Stakeholder Need#319*

Situational awareness without information overload is essential to flight safety *Stakeholder Need#467*

The basic ability to ensure one's own separation (in VMC), without any electronic interface with ground facilities or other aircraft, should never be lost *Stakeholder Need#266*

Use of conventionally equipped aircraft in ECAC airspace should not be made impossible *Stakeholder Need#371*

### 2.2.3.1 CNS services

*Service#10*

### Includes:

*Relationship#28*

1 COM (Communication Services)

*Service#11*

2 Navigation Services

*Service#12*

3 Surveillance Services

*Service#13*

**Service Needs to Address:**

*Relationship#10*

ATM should support, and take advantage of aircraft with cockpit traffic information display and ASAS capability *Stakeholder Need#507*

Some VFR users see benefits in having a traffic/AIS/MET situation display for the airspace around the aircraft's position *Stakeholder Need#356*

**2.2.3.1.1 COM (Communication Services)**

*Service#11*

**Service Needs to Address:**

*Relationship#10*

Any requirement of increasing the number of VHF com channels (i.e. 8.33 kHz) should be confined to the users who need it *Stakeholder Need#478*

Efficient coding and data compression techniques must be used for transferring weather data between air and ground *Stakeholder Need#341*

English, rather than the local language should be used by all pilots involved in commercial air transport and at large airports so that everyone is aware of the surrounding traffic situation *Stakeholder Need#388*

GA operators are seeking simple (low cost) communications means with ATM. A voice communications capability should always be available *Stakeholder Need#423*

GA/business aviation users feel strongly about the protection of the emergency VHF/HF frequency *Stakeholder Need#122*

Need for adequate information security management in the future ATM system *Stakeholder Need#384*

Need for information security management as an essential element in the protection of flight safety, commercial and military interests (confidentiality, consistency, integrity, etc.) *Stakeholder Need#385*

The principle of 'no routine voice' communications should apply to all flight phases (ground/ground and air/ground communications) *Stakeholder Need#352*

The users want mechanisms to ensure that emergency related message exchanges (on whatever communication medium) have priority over all other communications *Stakeholder Need#425*

The users would not like to see datalink as a simple substitution of current voice communication procedures *Stakeholder Need#360*

**2.2.3.1.2 Navigation Services**

*Service#12*

**Service Needs to Address:**

*Relationship#10*

A-SMGCS is needed at major airports *Stakeholder Need#503*

Accurate and reliable airborne navigation systems providing RNAV capability are urgently required *Stakeholder Need#455*

From an information point of view, A-SMGCS should be fully integrated with the rest of the ATM system *Stakeholder Need#504*

Need for A-SMGCS at major airports *Stakeholder Need#363*

Need for A-SMGCS at major airports *Stakeholder Need#458*

Pilots want access to the right traffic information (on-board) in order to take emergency actions and avoid other traffic *Stakeholder Need#508*

Users regard the Global Navigation Satellite System (GNSS) as the future navigation infrastructure *Stakeholder Need#505*

Users want flexibility with regard to navigational equipment used *Stakeholder Need#506*

### 2.2.3.1.3 Surveillance Services

Service#13

#### Service Needs to Address:

Relationship#10

A-SMGCS is needed at major airports

Stakeholder Need#503

Airspace users are willing to communicate position and intentions to others in the ATM system

Stakeholder Need#288

From an information point of view, A-SMGCS should be fully integrated with the rest of the ATM system

Stakeholder Need#504

Need for A-SMGCS at major airports

Stakeholder Need#363

Need for A-SMGCS at major airports

Stakeholder Need#458

Pilots want access to the right traffic information (on-board) in order to take emergency actions and avoid other traffic

Stakeholder Need#508

Users desire a ground based trajectory deviation monitoring function

Stakeholder Need#87

Users want surveillance services compatible with global standards. Surveillance coverage should exist throughout the complete European ECAC area

Stakeholder Need#252

### 2.2.3.2 ATM (Air Traffic Management)

Service#14

#### Includes:

Relationship#28

1 ASM (Airspace Management)

Service#15

2 ATFM (Air Traffic Flow Management)

Service#16

3 ATC (Air Traffic Control)

Service#17

#### Service Needs to Address:

Relationship#10

Airspace users require equitable treatment in the allocation of airspace and trajectories

Stakeholder Need#399

ATM needs to be in a position to offer a variety of 2nd choice tactical alternatives in case of the inability of the operator to follow the foreseen flight plan / 4D trajectory

Stakeholder Need#403

ATM should accommodate users (GA/business) who want to fly to an airport in close proximity to a major one in order to minimise landing and service charges

Stakeholder Need#457

ATM should attempt to minimise the environmental impact of air traffic by providing flexibility which allows as many optimal trajectories, defined by the operator, as possible

Stakeholder Need#397

Being the final decision-maker in an ATM environment providing a high degree of flexibility for flight operations is of prime importance to the users

Stakeholder Need#227

Corporate business aviation agrees with General Aviation for keeping airports and airspace open to all users

Stakeholder Need#345

Future ASM, app/dep procedures, clearance delivery, traffic separation etc should accommodate the special needs of fast climbing jets, helicopters, VTOL and other aircraft with non-std characteristics

Stakeholder Need#418

General Aviation needs sufficient UMAS, VFR access to MAS, free flight and dynamic routing, the ability to change flight rules while airborne, and access to information and airports

Stakeholder Need#329

Need for a gate-to-gate approach to ATM

Stakeholder Need#98

Non-discriminatory access to non-ECAC operators, provided mandatory equipment/avionics capability standards are complied with	Stakeholder Need#400
The ATM network should be open to all users. No one should be given priority because of his class of traffic	Stakeholder Need#65
The calculation of the optimum 4D trajectory and the final decision on the acceptance of an allocated trajectory must always rely with the operator	Stakeholder Need#404
The capacity evolution of the ATM network should be driven by market demand	Stakeholder Need#412
The final decision on allocation of a trajectory and eventual changes must always remain with the aircraft operators	Stakeholder Need#322
The main environmental role of ATM would be to provide adequate capacity, enabling the users to fly their requested trajectories	Stakeholder Need#327
The operators who have invested in advanced equipment for their aircraft shall be entitled to receive adequate benefits	Stakeholder Need#372
Users desire flexible use of terminal airspace, with mandatory SIDs and STARs eliminated as much as possible	Stakeholder Need#488
Users wish that in future European ATM the human is still the decision maker	Stakeholder Need#316

#### 2.2.3.2.1 ASM (Airspace Management)

Service#15

##### Service Needs to Address:

Relationship#10

A dialogue should be held with ALL airspace user categories before introducing any new controlled airspace	Stakeholder Need#479
A dynamic system for allocation of airspace for civil or military use is required to improve overall airspace usage	Stakeholder Need#395
A review and redesign of the low level airspace structure of the entire ECAC area should be conducted, to eliminate non-essential controlled airspace	Stakeholder Need#456
A route and airspace structure must be established which is not affected by national borders but is derived solely from the airspace users' operational requirements	Stakeholder Need#320
Airspace management measures need to be more ambitious and applied by all States. A 'Schengen' approach is needed	Stakeholder Need#522
Airspace users re-affirm that they want a flexible use of all airspace	Stakeholder Need#249
ATM must make a balanced trade-off between mandatory capabilities and non-segregation of traffic	Stakeholder Need#378
ATM should neither inhibit nor require the exercise of the sovereignty of the States over their own airspace	Stakeholder Need#232
Balloons primarily need access to airspace below 3000 ft AGL	Stakeholder Need#482
General Aviation aerobatics takes place in limited areas and does not require more than 4000 ft AGL	Stakeholder Need#485
In future ATM, on a tactical level, real time coordination is needed to ensure that all TSA airspace is made available for civil use at the earliest possible moment	Stakeholder Need#509
Microlights, conventional light aircraft, and helicopters used for recreational flying primarily need uncontrolled airspace below 3000 ft AGL	Stakeholder Need#481
Model flying takes place in limited areas and does not require more than 4000 ft AGL	Stakeholder Need#484

Need for a two-way dialogue between Airspace Management services and aircraft operators	Stakeholder Need#452
Need for comprehensive, up-to-date ASM information during pre-tactical flight-planning	Stakeholder Need#349
Need for dynamic management of airspace during tactical flight-planning. Operators must have knowledge of the availability of airspace in real-time	Stakeholder Need#350
Need for the uniform application of airspace classification throughout Europe	Stakeholder Need#250
Of all air sports, glider operations have the most extensive airspace requirements. The needs are quite different for altitude flights and cross-country gliding	Stakeholder Need#480
Parachuting needs airspace up to FL 120, but only requires this in a limited area and for a short period of time	Stakeholder Need#483
Rather than ATM based on strict segregation of airspace, users wish an operational concept in which shared use of all airspace for different user groups is safely possible	Stakeholder Need#304
Strategic Airspace Management should perform a continuous optimisation of the RNAV routes	Stakeholder Need#450
The airspace division (e.g. FIRs, division between upper/lower airspace, etc.) should be fully transparent to the users during strategic flight planning	Stakeholder Need#454
The military have a need for airspace to support, among other operations, their training activities. The need to interface and communicate with civilian ATM systems has been recognised	Stakeholder Need#109
The sovereignty of States over their own airspace should not hinder a flexible, optimized use of airspace according to the airspace users' operational needs	Stakeholder Need#305
Where possible, GA operators wish to conduct their operation independent of the airlines' airspace use (e.g. no use of higher flight levels, use of uncontrolled General Aviation airports)	Stakeholder Need#453

#### 2.2.3.2.2 ATFM (Air Traffic Flow Management)

Service#16

##### Service Needs to Address:

Relationship#10

Airlines need a certain degree of departure/arrival flexibility in order to maintain the efficiency of hub-and-spoke networks	Stakeholder Need#325
ATFM has to incorporate flexible capacity management and include consideration of gate-to-gate operations	Stakeholder Need#523
ATM is required not to impose significant irregularities and delays on flight operations	Stakeholder Need#324
ATM must cater for IFR flight plans filed in the air, and have sufficient spare capacity (slots) to support such extra demand	Stakeholder Need#463
ATM must provide capacity where and when needed. To achieve this, the ATM network must ensure optimum use of available capacity by optimisation tools	Stakeholder Need#461
ATM should be able to deal with the high military traffic volumes and priority rules which can be associated with times of crisis	Stakeholder Need#510
ATM should not play a role in the scheduling of airport capacity, but should be aware of the available airport capacity at all times in order to be able to maximise the use of that capacity	Stakeholder Need#490
Business aviation needs flexibility on departure times, routing and levels	Stakeholder Need#343

Except during short traffic peaks, the system should permanently have spare capacity, so as to enable an adequate level of tactical flexibility	Stakeholder Need#306
Flights with a high statistical punctuality wish to be rewarded for this (e.g. lower charges, preferential treatment in departure / arrival sequencing)	Stakeholder Need#476
If restrictions are confirmed, the CFMU should offer alternative solutions to minimise the deviation from the original requirement	Stakeholder Need#59
In times of exceptional circumstances, the CFMU should notify the users of the restrictions that are foreseen on the next day	Stakeholder Need#58
Need for advanced ATFM services, in particular increased tactical responsiveness on the basis of CDM principles	Stakeholder Need#57
Need for flexibility in trajectory allocation	Stakeholder Need#405
Need to include Met. information into tactical flow management decision making	Stakeholder Need#297
Regardless of the existence of slot allocation schemes, users wish to have a free choice between departure punctuality and departure flexibility	Stakeholder Need#475
Short haul and regional flights should wait on the ground in case of weather contingencies and be treated fairly with respect to arriving long haul aircraft while they have not taken off yet	Stakeholder Need#361
Strategic capacity allocation must be based on the projected demand, not on plans imposed by flow management	Stakeholder Need#398
The application of flow restrictions should be the exception, not the normal situation	Stakeholder Need#351
With agreement of the operators concerned, deviations from the 'first come first served' principle should be allowed in the interest of overall traffic optimization, e.g. at congested airports	Stakeholder Need#402

### 2.2.3.2.3 ATC (Air Traffic Control)

Service#17

#### Service Needs to Address:

Relationship#10

Airborne collision avoidance systems should remain an independent safety net	Stakeholder Need#313
Airlines confirmed that they wish to see standard separation minima applied throughout the whole European ECAC area	Stakeholder Need#451
Airspace users desire an ATC service on the basis of CDM principles while in managed airspace	Stakeholder Need#487
All weather operations at airports should be possible, without significant loss of airport capacity during adverse conditions	Stakeholder Need#331
Appropriately equipped and licenced airspace users want, throughout the European ECAC area, the regulatory possibility to land at and to take off from uncontrolled aerodromes in IMC conditions	Stakeholder Need#271
As much as possible, the pilot in command and the controller should have independent situational awareness (for flight safety reasons)	Stakeholder Need#314
ATM should organise a streaming of traffic with similar speed and climb performance characteristics, and where this is not possible, faster aircraft must be allowed to overtake the slower ones	Stakeholder Need#379
ATM should remain human-centered in the foreseeable future	Stakeholder Need#73



Controllers, pilots and airline ops controllers need to have the authority and means to deal with in-flight contingencies. Nevertheless contingency scenarios are useful to facilitate tactical response	Stakeholder Need#347
For IFR flights, airspace users want 'ATC by exception'	Stakeholder Need#353
GA users want VFR and autonomous flight operations if Met. conditions and airspace classification permit it	Stakeholder Need#420
Increasing the productivity of the air traffic controllers through the extensive use of computer support tools is a critical factor in finding the extra capacity needed	Stakeholder Need#521
It is the responsibility of ATM to ensure that in each flight phase the current high flight safety levels are at least maintained	Stakeholder Need#380
It should always be possible to change a trajectory in order to handle an in-flight contingency. Partial system failure on the ground should never have an impact on flight safety	Stakeholder Need#382
It should not be necessary for helicopters to be put on elongated circuits or to fly a whole fixed-wing pattern	Stakeholder Need#439
Need for a gate-to-gate approach in ATM, to adequately cover ground movement matters	Stakeholder Need#332
Need for a gate-to-gate approach to ATM	Stakeholder Need#321
Need for early arrival flexibility	Stakeholder Need#88
Need for equitable airport access and separate ground infrastructure for General Aviation	Stakeholder Need#270
Need for optimised departure/arrival sequencing and taxi routing	Stakeholder Need#364
New standardised ATM procedures for a variety of runway configurations should improve the fluidity of traffic with different capabilities at and around airports	Stakeholder Need#362
Operators require special VFR minima for helicopters and VTOL aircraft, plus the possibility to switch back and forth between VFR and IFR as required	Stakeholder Need#419
Pilots want to have access to a human being on the ground (controller), particularly in case of emergency	Stakeholder Need#426
Some pilots want the responsibility for separation during normal flight conditions to stay with the ground system	Stakeholder Need#354
The ATM network should be able to accommodate military missions and special flights; in particular aerial refueling, formation flights and long duration flights	Stakeholder Need#511
The current level of flight safety must be maintained and where feasible improved. Low visibility operations at major airports is seen as such an area where flight safety could be improved	Stakeholder Need#369
The need to increase airport capacity and airport and en-route capacity gains has to be balanced and remain in step if the full benefits of future investments are to be realised	Stakeholder Need#517
The system and/or the controller will have to keep airspace free to allow the pilot to deviate from his clearance in case of emergency	Stakeholder Need#428
The system should remain human centered for the foreseeable time, and the needs of human operators (pilots and controllers) must be duly taken into account	Stakeholder Need#396
Users require the provision of adequate flight safety in a very high traffic density environment	Stakeholder Need#466
Users suggest to define flight safety indicators, and implement detection (monitoring) and control mechanisms to (automatically ?) limit capacity increases when safety limits/thresholds are reached	Stakeholder Need#308

Within the strategically laid down capacity framework, as far as feasible being adjusted to demand, ATM must be flexible enough to take short-term changes of the operators' intentions into account *Stakeholder Need#401*

## 2.2.4 Alerting Services *Service#18*

## 2.2.5 SAR (Search and Rescue) *Service#19*

## 2.2.6 Post-Flight Services *Service#20*

**Includes:** *Relationship#28*

- 1 Quality of Service (Performance) Monitoring *Service#21*
- 2 Accident / Incident Investigation *Service#22*
- 3 Cost Recovery *Service#23*

### 2.2.6.1 Quality of Service (Performance) Monitoring *Service#21*

**Service Needs to Address:** *Relationship#10*

A performance review system needs to be established on supra-national level in order to provide feedback about the overall performance of ATM operations *Stakeholder Need#390*

A quality control mechanism should exist to check forecasts against actual weather *Stakeholder Need#286*

Airspace users request performance review mechanisms to ensure cost-effective provision of air traffic services *Stakeholder Need#414*

ATM must provide data and information to allow operators to determine their own operational efficiency *Stakeholder Need#392*

It will be important for a quality of service monitoring and control system to form an integral part of the future ATM network *Stakeholder Need#210*

Need for suitable assessment and monitoring of the flight safety level, to be based on the existence and performance of the various 'collision risk management' mechanisms *Stakeholder Need#465*

The principle of 'Bench Marking' should be adopted in conjunction with the establishment of performance standards *Stakeholder Need#296*

The system shall be capable of Quality Control Analysis. i.e. measure how well all performance targets are being met *Stakeholder Need#393*

### 2.2.6.2 Accident / Incident Investigation *Service#22*

**Service Needs to Address:** *Relationship#10*

Need for adequate security management of accident/incident data *Stakeholder Need#430*

Need for recording and distribution of data for incident and accident investigation purposes *Stakeholder Need#389*

Need for recording and distribution of data for incident and accident investigation purposes *Stakeholder Need#429*



### 2.2.6.3 Cost Recovery

Service#23

#### Service Needs to Address:

Relationship#10

- Airspace users request an auditing facility for user charges Stakeholder Need#433
- Cost recovery should be on the basis of real usage of the system, and the principles should be visible to everyone Stakeholder Need#434
- The ATM network must provide timely and accurate data in the detail required for cost recovery of its service in a multilaterally consistent manner Stakeholder Need#391
- The charging system for CNS/ATM should be non-discriminatory and cost related, containing a movement related element to cover fixed costs, and a time in the system element to cover variable costs Stakeholder Need#294
- The cost of services required for the use of airspace by sporting and recreational aviation, should be kept to an absolute minimum Stakeholder Need#449
- The long-term expectations regarding charging principles can be found in a number of ICAO and IATA documents Stakeholder Need#438
- The users want a cost recovery system which is fully integrated with the ATM system Stakeholder Need#431
- The users want a highly cost efficient billing system without losing the requirement of fair charging principles Stakeholder Need#435
- Under no circumstances should airspace users be required to pay for services not used / received Stakeholder Need#477
- Under no circumstances should airspace users pay twice for a given service Stakeholder Need#437
- User charging should be based on the principle of a basic service defined as a common cost base, plus optional services which should only be paid for as used Stakeholder Need#436
- Users desire to see all airport, enroute and other service charges on a single bill for each flight Stakeholder Need#432

## 2.3 Third Party Coordination

Service#24

#### Includes:

Relationship#28

- 1 Coordination with Aerodrome Operators Service#25
- 2 Coordination with Weather Service Providers Service#26
- 3 Civil / Military Coordination Service#27

#### Service Needs to Address:

Relationship#10

- The role of essential services such as meteorology and AIS has to be recognised and statements concerning national defence needs and military requirements strengthened and expanded Stakeholder Need#525

## 2.3.1 Coordination with Aerodrome Operators

Service#25

### Service Needs to Address:

Relationship#10

Aircraft operators desire the planning and execution of departures to be improved with the help of appropriate datalink applications Stakeholder Need#442

Airport operators desire close coordination with the CFMU in order to have better knowledge of expected traffic volumes and to improve the predictability of departure and arrival times Stakeholder Need#500

Airport operators require the ATM system to provide them with updates on a number of flight parameters via data link, whenever there are relevant changes Stakeholder Need#443

Future ATM procedures should reduce the environmental impact of air traffic without compromising flight safety Stakeholder Need#440

Need to apply CDM and Information Management principles to improve airport/ATM integration Stakeholder Need#147

The airport operators require that ATM is able to cope with unexpected changes in airport capacity Stakeholder Need#441

The ATC system should not be the limiting factor for the expansion of airport capacity Stakeholder Need#491

The need to increase airport capacity and airport and en-route capacity gains has to be balanced and remain in step if the full benefits of future investments are to be realised Stakeholder Need#517

## 2.3.2 Coordination with Weather Service Providers

Service#26

### Service Needs to Address:

Relationship#10

Adequate database servers should be available for storage and dissemination of met. data, aerodrome products and atmospheric data Stakeholder Need#282

Aircraft weather sensor parameters require certain pre-processing before being downlinked to Met. service providers Stakeholder Need#334

Airspace users would like to see an increased number of Automatic Weather Observation Systems at uncontrolled airports Stakeholder Need#459

All developments in the aviation meteorology field must be cost effective Stakeholder Need#280

Human factors should be duly taken into account when considering improvements in the exchange and (cockpit) presentation of meteorological data Stakeholder Need#277

Mechanisms should be put in place to ensure appropriate authority, responsibility and data control of aviation weather information, so that the various parties use a coherent set of Met. data Stakeholder Need#498

Met Service Providers have a number of requirements regarding better Information Management Stakeholder Need#387

Met Service Providers have a number of requirements regarding better Information Management Stakeholder Need#444

Meteorologists need a better measurement and categorisation of the scale of intensity of meteorological phenomena Stakeholder Need#335

Need for better exchange of meteorological research information between all parties Stakeholder Need#447

Need for standardised formatting of weather data Stakeholder Need#185

Since weather data and forecasts are perishable, their creation and distribution have timeliness requirements *Stakeholder Need#186*

There is a requirement to examine who has the responsibility for the certification of met equipment, personnel and met products for aeronautical services *Stakeholder Need#200*

There should be compatibility of weather forecast information from different sources to allow maximum exchange of data *Stakeholder Need#188*

Weather service providers need mechanisms to ensure feedback from users about the quality of their forecasts *Stakeholder Need#339*

Weather service providers need to know from the ATM designers, which met. model accuracy and resolution is required to satisfy their trajectory prediction requirements *Stakeholder Need#445*

### 2.3.3 Civil / Military Coordination

*Service#27*

#### Service Needs to Address:

*Relationship#10*

Limitations in the data exchange between military and civil systems should not impose constraints on civilian developments *Stakeholder Need#468*

The interoperability between ATM and military air command and control systems should provide the unrestricted, timely and accurate exchange of relevant information *Stakeholder Need#291*

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## URD Chapter 3 REQUIREMENT THEMES - DESCRIPTION

### 3 Taxonomy of Themes

Theme#1

#### Note:

This taxonomy of themes is one of the many possible ways of grouping the Stakeholder Needs. It serves as a useful vehicle for identifying the similarities and close relationships between requirements.

The taxonomy does not pretend to include all imaginable themes. Based on the 'Special Subjects' categorisation in edition 1.0 of the URD, it reflects only those issues which have been addressed during the 1994 EATMS User Requirements Workshop. Therefore the taxonomy may need to be expanded and/or modified as new and different requirements emerge.

#### Includes:

Relationship#28

- |                                   |          |
|-----------------------------------|----------|
| 1 Principles of Treatment         | Theme#2  |
| 2 Legal Aspects                   | Theme#9  |
| 3 Standardisation & Certification | Theme#43 |
| 4 Quality Assurance               | Theme#42 |
| 5 Human Factors                   | Theme#3  |
| 6 Non-Functional Characteristics  | Theme#15 |
| 7 Meteorological Conditions       | Theme#12 |

### 3.1 Principles of Treatment

Theme#2

#### Is Theme of:

Relationship#16

A dialogue should be held with ALL airspace user categories before introducing any new controlled airspace

A mechanism for the resolution of conflicts of interest, when there are clearly identified conflicting requirements, must be established

Air taxi operators have the same requirements as corporate business aviation, but cost is a more critical factor

Aircraft operators want, throughout the ECAC area, an exemption of the obligation to file a flight plan, for all VFR flights (including international VFR flights) which do not need an ATC clearance

Airspace users require equitable treatment in the allocation of airspace and trajectories

Appropriately equipped and licenced airspace users want, throughout the European ECAC area, the regulatory possibility to land at and to take off from uncontrolled aerodromes in IMC conditions

ATM must make a balanced trade-off between mandatory capabilities and non-segregation of traffic

ATM should be able to deal with the high military traffic volumes and priority rules which can be associated with times of crisis

ATM should be able to handle a mixture of aircraft equipment. However the lowest capability aircraft should not impose the Quality of Service (QoS) for all	Stakeholder Need#370
ATM should neither inhibit nor require the exercise of the sovereignty of the States over their own airspace	Stakeholder Need#232
ATM should not play a role in the scheduling of airport capacity, but should be aware of the available airport capacity at all times in order to be able to maximise the use of that capacity	Stakeholder Need#490
ATM should organise a streaming of traffic with similar speed and climb performance characteristics, and where this is not possible, faster aircraft must be allowed to overtake the slower ones	Stakeholder Need#379
CNS systems for wholly aviation use should be avoided where possible, this will allow costs to be shared by all users. Cost recovery should occur as benefits are received	Stakeholder Need#293
Corporate business aviation shares many requirements with commercial air transport	Stakeholder Need#344
Cost recovery should be on the basis of real usage of the system, and the principles should be visible to everyone	Stakeholder Need#434
Flights with a high statistical punctuality wish to be rewarded for this (e.g. lower charges, preferential treatment in departure / arrival sequencing)	Stakeholder Need#476
Future ATM procedures should reduce the environmental impact of air traffic without compromising flight safety	Stakeholder Need#440
Future ATM should accommodate shared (non-segregated) use of airspace between civil (or military) Unmanned Aerial Vehicles (UAVs) and other commercial, military and general aviation traffic	Stakeholder Need#269
GA needs indiscriminatory access to controlled airspace by aircraft with different performance levels, coupled with adequate C/B ratios, fair charging principles and ongoing ATM performance review	Stakeholder Need#259
GA users want VFR and autonomous flight operations if Met. conditions and airspace classification permit it	Stakeholder Need#420
General Aviation needs sufficient UMAS, VFR access to MAS, free flight and dynamic routing, the ability to change flight rules while airborne, and access to information and airports	Stakeholder Need#329
In future ATM, certain VFR operations should be possible with a minimum of equipment (e.g. not even VHF radio for gliders and microlights)	Stakeholder Need#421
Mandating should be in terms of capabilities and not in terms of equipment	Stakeholder Need#375
Mandating should be in terms of capabilities and not in terms of equipment (GA requirement)	Stakeholder Need#422
Mandatory capabilities at certain locations are accepted if a clear plan is available and adequate C/B ratio benefits have been demonstrated	Stakeholder Need#376
Need for equitable airport access and separate ground infrastructure for General Aviation	Stakeholder Need#270
Need for User-segmented Cost/Benefit analysis, because the 'average' user does not exist and hence overall C/B ratios are not relevant	Stakeholder Need#410
Need to accommodate aerial work activities in all airspace	Stakeholder Need#267

Non-discriminatory access to non-ECAC operators, provided mandatory equipment/avionics capability standards are complied with	Stakeholder Need#400
Rather than ATM based on strict segregation of airspace, users wish an operational concept in which shared use of all airspace for different user groups is safely possible	Stakeholder Need#304
Some GA and Aerial Work users want to be able to fly without a flight plan for short haul trips (200-300 nm) between cities and for VFR flights which do not require clearances	Stakeholder Need#261
The airspace division (e.g. FIRs, division between upper/lower airspace, etc.) should be fully transparent to the users during strategic flight planning	Stakeholder Need#454
The ATM network should be open to all users. No one should be given priority because of his class of traffic	Stakeholder Need#65
The basic ability to ensure one's own separation (in VMC), without any electronic interface with ground facilities or other aircraft, should never be lost	Stakeholder Need#266
The calculation of the optimum 4D trajectory and the final decision on the acceptance of an allocated trajectory must always rely with the operator	Stakeholder Need#404
The charging system for CNS/ATM should be non-discriminatory and cost related, containing a movement related element to cover fixed costs, and a time in the system element to cover variable costs	Stakeholder Need#294
The combination of equipage requirements and benefits should be such that operators are naturally invited to upgrade. This is preferred over the method of imposing or mandating equipment/capabilities	Stakeholder Need#373
The ECAC area should be 'open' for all flights without internal artificial boundaries which require prior overflight permission to be obtained	Stakeholder Need#411
The final decision on allocation of a trajectory and eventual changes must always remain with the aircraft operators	Stakeholder Need#322
The long-term expectations regarding charging principles can be found in a number of ICAO and IATA documents	Stakeholder Need#438
The main environmental role of ATM would be to provide adequate capacity, enabling the users to fly their requested trajectories	Stakeholder Need#327
The operators who have invested in advanced equipment for their aircraft shall be entitled to receive adequate benefits	Stakeholder Need#372
The services rendered by ATM should in principle not be compulsory but basically offered and be made available to all categories of users whenever they need them	Stakeholder Need#292
The sovereignty of States over their own airspace should not hinder a flexible, optimized use of airspace according to the airspace users' operational needs	Stakeholder Need#305
The users want a highly cost efficient billing system without losing the requirement of fair charging principles	Stakeholder Need#435
There should be no obligation to file ATS flight plans for cross-border flights conducted according to VFR within the EU	Stakeholder Need#264
Under no circumstances should airspace users be required to pay for services not used / received	Stakeholder Need#477
Under no circumstances should airspace users pay twice for a given service	Stakeholder Need#437

Use of conventionally equipped aircraft in ECAC airspace should not be made impossible	Stakeholder Need#371
User charging should be based on the principle of a basic service defined as a common cost base, plus optional services which should only be paid for as used	Stakeholder Need#436
Users regard the Global Navigation Satellite System (GNSS) as the future navigation infrastructure	Stakeholder Need#505
With agreement of the operators concerned, deviations from the 'first come first served' principle should be allowed in the interest of overall traffic optimization, e.g. at congested airports	Stakeholder Need#402

## 3.2 Legal Aspects

Theme#9

### Includes:

Authority

Relationship#28

Liability and Responsibility

Theme#10

Theme#11

### Is Theme of:

Relationship#16

Mechanisms should be put in place to ensure appropriate authority, responsibility and data control of aviation weather information, so that the various parties use a coherent set of Met. data

There is a requirement to examine who has the responsibility for the certification of met equipment, personnel and met products for aeronautical services

Stakeholder Need#200

### 3.2.1 Authority

Theme#10

### 3.2.2 Liability and Responsibility

Theme#11

#### Is Theme of:

Relationship#16

Legal liability issues must be clarified as a prerequisite to adding more automation

Stakeholder Need#317

Need for responsibility and liability regarding information quality assurance in AIS

Stakeholder Need#81

Some pilots want the responsibility for separation during normal flight conditions to stay with the ground system

Stakeholder Need#354

## 3.3 Standardisation & Certification

Theme#43

### Includes:

Certification

Relationship#28

Standardisation

Theme#44

Theme#47

### Is Theme of:

Relationship#16

European ATM improvements should occur in a regulatory framework duly related to ICAO, while making provisions for the different (most likely slower) pace at which the ICAO annexes are updated

Stakeholder Need#448

Need for proper user guidance, public funding and professional implementation management for accelerated standardization and certification of available CNS technologies *Stakeholder Need#460*

### 3.3.1 Certification

*Theme#44*

#### Includes:

Certification (Approval) of Procedures and Working Methods  
Certification of Human Operators  
Certification of Systems and Equipment

*Relationship#28*

*Theme#48*

*Theme#45*

*Theme#46*

#### Is Theme of:

Lead times and pre-notification for mandating new airborne capabilities need to ensure the availability of the equipment incl. certification, and sufficient time for installation and training

*Relationship#16*

*Stakeholder Need#494*

There is a requirement to examine who has the responsibility for the certification of met equipment, personnel and met products for aeronautical services

*Stakeholder Need#200*

#### 3.3.1.1 Certification (Approval) of Procedures and Working Methods

*Theme#48*

#### 3.3.1.2 Certification of Human Operators

*Theme#45*

#### Is Theme of:

Operating in the future ATM environment should be possible without special skills and ratings

*Relationship#16*

*Stakeholder Need#319*

#### 3.3.1.3 Certification of Systems and Equipment

*Theme#46*

#### Is Theme of:

Groundworthiness certification is becoming an issue because with A/G datalink, the ground system is increasingly to be considered as an extension of the avionics

*Relationship#16*

*Stakeholder Need#309*

### 3.3.2 Standardisation

*Theme#47*

#### Is Theme of:

Airlines confirmed that they wish to see standard separation minima applied throughout the whole European ECAC area

*Relationship#16*

*Stakeholder Need#451*

English, rather than the local language should be used by all pilots involved in commercial air transport and at large airports so that everyone is aware of the surrounding traffic situation

*Stakeholder Need#388*

Mandating avionic capabilities must be on the basis of global standards in order to cater for the interoperability of aircraft flying into or coming from regions outside Europe

*Stakeholder Need#377*

Meteorologists need a better measurement and categorisation of the scale of intensity of meteorological phenomena

*Stakeholder Need#335*

Need for a European AIS Database (EAD)

*Stakeholder Need#348*

Need for advanced Information Management in AIS	Stakeholder Need#495
Need for advanced Information Management in support of MET service provision	Stakeholder Need#243
Need for standardised formatting of weather data	Stakeholder Need#185
Need for timely availability of data exchange standards	Stakeholder Need#501
New standardised ATM procedures for a variety of runway configurations should improve the fluidity of traffic with different capabilities at and around airports	Stakeholder Need#362
Standards for additional capabilities (equipment) for airspace compatibility should be urgently established so that they can be factored in the current designs of UAVs	Stakeholder Need#333
Users ask for a capability to provide Met. information to aircraft in flight via datalink	Stakeholder Need#424
Users want surveillance services compatible with global standards. Surveillance coverage should exist throughout the complete European ECAC area	Stakeholder Need#252

### 3.4 Quality Assurance

Theme#42

#### Is Theme of:

Relationship#16

A performance review system needs to be established on supra-national level in order to provide feedback about the overall performance of ATM operations	Stakeholder Need#390
A quality control mechanism should exist to check forecasts against actual weather	Stakeholder Need#286
Airspace users request an auditing facility for user charges	Stakeholder Need#433
Airspace users request performance review mechanisms to ensure cost-effective provision of air traffic services	Stakeholder Need#414
ATM improvements should only be introduced after careful risk mitigation	Stakeholder Need#499
ATM services should be seamless from the users' point of view. There should be a clear distinction between the responsibilities of governments and the management of the ATM system	Stakeholder Need#416
GA needs indiscriminatory access to controlled airspace by aircraft with different performance levels, coupled with adequate C/B ratios, fair charging principles and ongoing ATM performance review	Stakeholder Need#259
Implementation management mechanisms have to be clearly defined and rigorously enforced	Stakeholder Need#526
It will be important for a quality of service monitoring and control system to form an integral part of the future ATM network	Stakeholder Need#210
Need for a common Cost/Benefit methodology and application of common C/B principles to the entire ECAC area	Stakeholder Need#409
Need for the application of common Cost/Benefit Analysis principles throughout the ECAC area	Stakeholder Need#502
R & D activities needed to support the Strategy have to be identified and prioritised	Stakeholder Need#527
The future ATM system has to be based on a benefit-driven approach supported by clear business cases and must incorporate measurable performance targets	Stakeholder Need#513
The principle of 'Bench Marking' should be adopted in conjunction with the establishment of performance standards	Stakeholder Need#296

The quality assurance of source data (navigation data, clearances etc.) is becoming a real flight safety issue *Stakeholder Need#310*

The system shall be capable of Quality Control Analysis. i.e. measure how well all performance targets are being met *Stakeholder Need#393*

## 3.5 Human Factors

*Theme#3*

### Includes:

Education and Training

Human Acceptance

Situational Awareness

Tolerance against Human Errors

Workload

*Relationship#28*

*Theme#4*

*Theme#5*

*Theme#6*

*Theme#7*

*Theme#8*

### Is Theme of:

ATM should remain human-centered in the foreseeable future

Cockpit Human Factors should be duly taken into account during the continued evolution of ATM

English, rather than the local language should be used by all pilots involved in commercial air transport and at large airports so that everyone is aware of the surrounding traffic situation *Stakeholder Need#388*

Human factors should be duly taken into account when considering improvements in the exchange and (cockpit) presentation of meteorological data *Stakeholder Need#277*

The human will remain an essential part of the ATM system for the foreseeable future and this has to be taken into account in the early design stages of the enabling systems and infrastructure *Stakeholder Need#520*

The system should remain human centered for the foreseeable time, and the needs of human operators (pilots and controllers) must be duly taken into account *Stakeholder Need#396*

Users wish that in future European ATM the human is still the decision maker *Stakeholder Need#316*

### 3.5.1 Education and Training

*Theme#4*

#### Is Theme of:

Lead times and pre-notification for mandating new airborne capabilities need to ensure the availability of the equipment incl. certification, and sufficient time for installation and training

Training and familiarisation must be possible in the ATM transition schedule *Stakeholder Need#406*



### 3.5.2 Human Acceptance

Theme#5

#### Is Theme of:

Relationship#16

Due to the need for human acceptance, there must be a stepwise introduction of automation, rather than a big-bang transition Stakeholder Need#315

### 3.5.3 Situational Awareness

Theme#6

#### Is Theme of:

Relationship#16

A-SMGCS is needed at major airports Stakeholder Need#503

As much as possible, the pilot in command and the controller should have independent situational awareness (for flight safety reasons) Stakeholder Need#314

ATM should support, and take advantage of aircraft with cockpit traffic information display and ASAS capability Stakeholder Need#507

In case of ATM service degradation, airspace users want visibility i.e. knowledge on service quality expected, information about the degradation of ATM operations, ATC resources, means Stakeholder Need#358

Pilots and controllers should have, at all times, precise knowledge of the nature, probability and extent of possible contingencies, and of the latest applicable contingency plans Stakeholder Need#312

Pilots want access to the right traffic information (on-board) in order to take emergency actions and avoid other traffic Stakeholder Need#508

Pilots want to have access to a human being on the ground (controller), particularly in case of emergency Stakeholder Need#426

Situational awareness without information overload is essential to flight safety Stakeholder Need#467

Some VFR users see benefits in having a traffic/AIS/MET situation display for the airspace around the aircraft's position Stakeholder Need#356

The human (pilot/controller) should always be in a position to do a final check on the validity of information Stakeholder Need#386

### 3.5.4 Tolerance against Human Errors

Theme#7

#### Is Theme of:

Relationship#16

Need for suitable assessment and monitoring of the flight safety level, to be based on the existence and performance of the various 'collision risk management' mechanisms Stakeholder Need#465

### 3.5.5 Workload

Theme#8

#### Is Theme of:

Relationship#16

For IFR flights, airspace users want 'ATC by exception' Stakeholder Need#353

Increasing the productivity of the air traffic controllers through the extensive use of computer support tools is a critical factor in finding the extra capacity needed Stakeholder Need#521

Pilots want to have access to a human being on the ground (controller), particularly in case of emergency Stakeholder Need#426

Situational awareness without information overload is essential to flight safety Stakeholder Need#467



The principle of 'no routine voice' communications should apply to *Stakeholder Need#352* all flight phases (ground/ground and air/ground communications)

## 3.6 Non-Functional Characteristics

Theme#15

### Includes:

Availability  
Evolvability  
Flexibility  
Integration  
Integrity  
Interoperability  
Optimisation  
Performance  
Reliability  
Safety & Security  
Survivability  
Usability

Relationship#28

Theme#16

Theme#19

Theme#20

Theme#49

Theme#21

Theme#22

Theme#23

Theme#24

Theme#36

Theme#37

Theme#40

Theme#41

### 3.6.1 Availability

Theme#16

### Includes:

Accessibility (in space)  
Availability (in time)

Relationship#28

Theme#17

Theme#18

### Is Theme of:

Relationship#16

Availability levels of tactical safety-critical services should be designed around safety objectives; availability of non-safety critical services around C/B principles

Stakeholder Need#218

Corporate business aviation agrees with General Aviation for keeping airports and airspace open to all users

Stakeholder Need#345

Need for dynamic management of airspace during tactical flight-planning. Operators must have knowledge of the availability of airspace in real-time

Stakeholder Need#350

Need for equitable airport access and separate ground infrastructure for General Aviation

Stakeholder Need#270

Some VFR users see benefits in having a traffic/AIS/MET situation display for the airspace around the aircraft's position

Stakeholder Need#356

The ATM network should be open to all users. No one should be given priority because of his class of traffic

Stakeholder Need#65

Users ask for a capability to provide Met. information to aircraft in flight via datalink

Stakeholder Need#424

Where possible, GA operators wish to conduct their operation independent of the airlines' airspace use (e.g. no use of higher flight levels, use of uncontrolled General Aviation airports)

Stakeholder Need#453

### 3.6.1.1 Accessibility (in space)

Theme#17

**Is Theme of:**

Relationship#16

A review and redesign of the low level airspace structure of the entire ECAC area should be conducted, to eliminate non-essential controlled airspace

Stakeholder Need#456

ATM should accommodate users (GA/business) who want to fly to an airport in close proximity to a major one in order to minimise landing and service charges

Stakeholder Need#457

Balloons primarily need access to airspace below 3000 ft AGL

Stakeholder Need#482

GA needs indiscriminatory access to controlled airspace by aircraft with different performance levels, coupled with adequate C/B ratios, fair charging principles and ongoing ATM performance review

Stakeholder Need#259

General Aviation aerobatics takes place in limited areas and does not require more than 4000 ft AGL

Stakeholder Need#485

Microlights, conventional light aircraft, and helicopters used for recreational flying primarily need uncontrolled airspace below 3000 ft AGL

Stakeholder Need#481

Model flying takes place in limited areas and does not require more than 4000 ft AGL

Stakeholder Need#484

Of all air sports, glider operations have the most extensive airspace requirements. The needs are quite different for altitude flights and cross-country gliding

Stakeholder Need#480

Parachuting needs airspace up to FL 120, but only requires this in a limited area and for a short period of time

Stakeholder Need#483

The military have a need for airspace to support, among other operations, their training activities. The need to interface and communicate with civilian ATM systems has been recognised

Stakeholder Need#109

The right of access to airspace for all users must be a central objective

Stakeholder Need#516

Users want surveillance services compatible with global standards. Surveillance coverage should exist throughout the complete European ECAC area

Stakeholder Need#252

### 3.6.1.2 Availability (in time)

Theme#18

**Is Theme of:**

Relationship#16

Parachuting needs airspace up to FL 120, but only requires this in a limited area and for a short period of time

Stakeholder Need#483

### 3.6.2 Evolvability

Theme#19

**Is Theme of:**

Relationship#16

A defined CNS/ATM transition period should be established.

Stakeholder Need#295

Detailed technical input to identify redundant equipment will be necessary to ensure national cost bases are reduced accordingly

Decisions on mandating retrofit of airborne equipment capabilities must be based on cost/benefit analysis

Stakeholder Need#492

Due to mutual interdependencies, careful consideration of the implementation order for ATM and met. services is needed

Stakeholder Need#278

Due to the need for human acceptance, there must be a stepwise introduction of automation, rather than a big-bang transition	Stakeholder Need#315
European ATM improvements should occur in a regulatory framework duly related to ICAO, while making provisions for the different (most likely slower) pace at which the ICAO annexes are updated	Stakeholder Need#448
Lead times and pre-notification for mandating new airborne capabilities need to ensure the availability of the equipment incl. certification, and sufficient time for installation and training	Stakeholder Need#494
Met Service Providers have a number of requirements regarding better Information Management	Stakeholder Need#387
Need for milestones which bring clear benefits	Stakeholder Need#408
Need for timely availability of data exchange standards	Stakeholder Need#501
Pre-operational field trials should be encouraged on local, national and regional levels to the benefit of the future European ATM network	Stakeholder Need#241
The ATM transition plan should be coordinated with the aircraft operator plans, such that new airborne capabilities are matched by corresponding ground system functionality in the same time frame	Stakeholder Need#374
The combination of equipage requirements and benefits should be such that operators are naturally invited to upgrade. This is preferred over the method of imposing or mandating equipment/capabilities	Stakeholder Need#373
The development of a strategy and transition path towards the Target Concept needs to be done cooperatively between service providers and airspace users	Stakeholder Need#407
The users see a need to provide a 'pull' strategy to provide the incentive for the shortest transition period possible (simultaneous support of old and new functionality)	Stakeholder Need#38
There should be a clearly defined mechanism to ensure a continuous two-way dialogue with the users regarding the evolution of ATM	Stakeholder Need#328
User consultation is essential in order to achieve suitable retrofit schedules	Stakeholder Need#493
Users express the desire to implement the 4D profile communication capability via datalink early in the ATM transition schedule	Stakeholder Need#359

### 3.6.3 Flexibility

Theme#20

#### Is Theme of:

Relationship#16

A dynamic system for allocation of airspace for civil or military use is required to improve overall airspace usage	Stakeholder Need#395
Aircraft operators want the flexibility to formulate and modify flight plans as late as possible	Stakeholder Need#472
Airlines need a certain degree of departure/arrival flexibility in order to maintain the efficiency of hub-and-spoke networks	Stakeholder Need#325
Airspace users re-affirm that they want a flexible use of all airspace	Stakeholder Need#249
ATM must cater for IFR flight plans filed in the air, and have sufficient spare capacity (slots) to support such extra demand	Stakeholder Need#463

ATM needs to be in a position to offer a variety of 2nd choice tactical alternatives in case of the inability of the operator to follow the foreseen flight plan / 4D trajectory	Stakeholder Need#403
ATM should attempt to minimise the environmental impact of air traffic by providing flexibility which allows as many optimal trajectories, defined by the operator, as possible	Stakeholder Need#397
ATM should be able to deal with the high military traffic volumes and priority rules which can be associated with times of crisis	Stakeholder Need#510
Being the final decision-maker in an ATM environment providing a high degree of flexibility for flight operations is of prime importance to the users	Stakeholder Need#227
Business aviation needs flexibility on departure times, routing and levels	Stakeholder Need#343
Controllers, pilots and airline ops controllers need to have the authority and means to deal with in-flight contingencies. Nevertheless contingency scenarios are useful to facilitate tactical response	Stakeholder Need#347
Except during short traffic peaks, the system should permanently have spare capacity, so as to enable an adequate level of tactical flexibility	Stakeholder Need#306
Future ASM, app/dep procedures, clearance delivery, traffic separation etc should accommodate the special needs of fast climbing jets, helicopters, VTOL and other aircraft with non-std characteristics	Stakeholder Need#418
General Aviation expects a flexible, cost effective system with responsive capacity management, able to handle a large diversity of aircraft and performance levels	Stakeholder Need#258
If restrictions are confirmed, the CFMU should offer alternative solutions to minimise the deviation from the original requirement	Stakeholder Need#59
It should always be possible to change a trajectory in order to handle an in-flight contingency. Partial system failure on the ground should never have an impact on flight safety	Stakeholder Need#382
Need for advanced ATFM services, in particular increased tactical responsiveness on the basis of CDM principles	Stakeholder Need#57
Need for dynamic management of airspace during tactical flight-planning. Operators must have knowledge of the availability of airspace in real-time	Stakeholder Need#350
Need for early arrival flexibility	Stakeholder Need#88
Need for flexibility in trajectory allocation	Stakeholder Need#405
Of all air sports, glider operations have the most extensive airspace requirements. The needs are quite different for altitude flights and cross-country gliding	Stakeholder Need#480
Operators require special VFR minima for helicopters and VTOL aircraft, plus the possibility to switch back and forth between VFR and IFR as required	Stakeholder Need#419
Regardless of the existence of slot allocation schemes, users wish to have a free choice between departure punctuality and departure flexibility	Stakeholder Need#475
Service provision should be personalised to the needs of each individual flight to a very high degree	Stakeholder Need#303
Strategic Airspace Management should perform a continuous optimisation of the RNAV routes	Stakeholder Need#450

The airport operators require that ATM is able to cope with unexpected changes in airport capacity *Stakeholder Need#441*

The application of flow restrictions should be the exception, not the normal situation *Stakeholder Need#351*

The interoperability between ATM and military air command and control systems should provide the unrestricted, timely and accurate exchange of relevant information *Stakeholder Need#291*

Users desire flexible use of terminal airspace, with mandatory SIDs and STARs eliminated as much as possible *Stakeholder Need#488*

Users want flexibility with regard to navigational equipment used *Stakeholder Need#506*

Within the strategically laid down capacity framework, as far as feasible being adjusted to demand, ATM must be flexible enough to take short-term changes of the operators' intentions into account *Stakeholder Need#401*

### 3.6.4 Integration

*Theme#49*

**Is Theme of:** *Relationship#16*

A flight must be seen by the ATM network as an integral coherent process, starting with strategic flight planning and ending after the completion of post-flight activities *Stakeholder Need#512*

Adequate database servers should be available for storage and dissemination of met. data, aerodrome products and atmospheric data *Stakeholder Need#282*

Aircraft operators want highly up-to-date AIS information regarding the current status the Air Navigation System *Stakeholder Need#497*

Aircraft weather sensor parameters require certain pre-processing before being downlinked to Met. service providers *Stakeholder Need#334*

Airport operators desire close coordination with the CFMU in order to have better knowledge of expected traffic volumes and to improve the predictability of departure and arrival times *Stakeholder Need#500*

Airport operators require the ATM system to provide them with updates on a number of flight parameters via data link, whenever there are relevant changes *Stakeholder Need#443*

Airspace users are willing to communicate position and intentions to others in the ATM system *Stakeholder Need#288*

Airspace users desire an ATC service on the basis of CDM principles while in managed airspace *Stakeholder Need#487*

Airspace users have a basic requirement for up-to-date AIS/MET information and air traffic density forecast products prior to any flight operations *Stakeholder Need#61*

AIS information should be enhanced with corresponding traffic (density) / congestion forecasts and flow restrictions *Stakeholder Need#496*

ATFM has to incorporate flexible capacity management and include consideration of gate-to-gate operations *Stakeholder Need#523*

ATM must provide data and information to allow operators to determine their own operational efficiency *Stakeholder Need#392*

Certain services like AIS, MET, ARO should be integrated to improve the efficiency of these services to the users *Stakeholder Need#417*

Collaborative decision making based on improved planning procedures and information management is an important key to a more efficient, flexible and effective ATM system *Stakeholder Need#518*

Collaborative decision making based on improved planning procedures and information management needs to be applied at both the strategic and tactical levels	Stakeholder Need#519
During tactical flight-planning, airspace users require highly up-to-date and accurate information on actual weather and forecast conditions	Stakeholder Need#246
From an information point of view, A-SMGCS should be fully integrated with the rest of the ATM system	Stakeholder Need#504
GA operators without weather radar desire the in-flight capability to receive graphical weather information via datalink	Stakeholder Need#260
In future ATM, an enhanced Planned Flight Data (PFD) submission should obviate the need for strategic flight planning (RPL)	Stakeholder Need#473
In times of exceptional circumstances, the CFMU should notify the users of the restrictions that are foreseen on the next day	Stakeholder Need#58
It should be sufficient to send flight plans to a single address for dissemination as appropriate	Stakeholder Need#471
Met Service Providers have a number of requirements regarding better Information Management	Stakeholder Need#387
Need for a European AIS Database (EAD)	Stakeholder Need#348
Need for a gate-to-gate approach in ATM, to adequately cover ground movement matters	Stakeholder Need#332
Need for a gate-to-gate approach to ATM	Stakeholder Need#321
Need for a gate-to-gate approach to ATM	Stakeholder Need#98
Need for a two-way dialogue between Airspace Management services and aircraft operators	Stakeholder Need#452
Need for better exchange of meteorological research information between all parties	Stakeholder Need#447
Need for comprehensive, up-to-date ASM information during pre-tactical flight-planning	Stakeholder Need#349
Need for dynamic management of airspace during tactical flight-planning. Operators must have knowledge of the availability of airspace in real-time	Stakeholder Need#350
Need for open access to information to increase airspace capacity for VFR traffic	Stakeholder Need#367
Need for recording and distribution of data for incident and accident investigation purposes	Stakeholder Need#389
Need for recording and distribution of data for incident and accident investigation purposes	Stakeholder Need#429
Need to apply CDM and Information Management principles to improve airport/ATM integration	Stakeholder Need#147
Need to include Met. information into tactical flow management decision making	Stakeholder Need#297
Pre-flight information should be easily accessible to all airspace users, in ways which are tailored to the needs of each specific user group	Stakeholder Need#415
Since weather data and forecasts are perishable, their creation and distribution have timeliness requirements	Stakeholder Need#186
The ATM network must provide timely and accurate data in the detail required for cost recovery of its service in a multilaterally consistent manner	Stakeholder Need#391

The role of essential services such as meteorology and AIS has to be recognised and statements concerning national defence needs and military requirements strengthened and expanded *Stakeholder Need#525*

The users want a cost recovery system which is fully integrated with the ATM system *Stakeholder Need#431*

There should be compatibility of weather forecast information from different sources to allow maximum exchange of data *Stakeholder Need#188*

Users are looking for AIS/MET self-briefing facilities at all aerodromes and from home via personal computer through the Internet *Stakeholder Need#365*

Users ask for a capability to provide Met. information to aircraft in flight via datalink *Stakeholder Need#424*

Users desire fully automated facilities for direct, personal flight plan filing, available at all aerodromes and from home via personal computer through the Internet *Stakeholder Need#366*

Users desire to see all airport, enroute and other service charges on a single bill for each flight *Stakeholder Need#432*

Weather service providers need mechanisms to ensure feedback from users about the quality of their forecasts *Stakeholder Need#339*

### 3.6.5 Integrity

Theme#21

#### Is Theme of:

Relationship#16

Met Service Providers have a number of requirements regarding better Information Management *Stakeholder Need#387*

Need for a European AIS Database (EAD) *Stakeholder Need#348*

Need for advanced Information Management in support of MET service provision *Stakeholder Need#243*

### 3.6.6 Interoperability

Theme#22

#### Is Theme of:

Relationship#16

Aircraft operators desire the planning and execution of departures to be improved with the help of appropriate datalink applications *Stakeholder Need#442*

Any requirement of increasing the number of VHF com channels (i.e. 8.33 kHz) should be confined to the users who need it *Stakeholder Need#478*

Data coming from adjacent areas should be processable by the European ATM network in order to provide a seamless transition of flights. This should be on the basis of ICAO standards *Stakeholder Need#394*

ECAC should analyse its ground transition improvement plans and ensure that they will not create new problems in adjacent areas. *Stakeholder Need#237*

The airborne ATM elements should be standardised on a global level

Future ATM should accommodate shared (non-segregated) use of airspace between civil (or military) Unmanned Aerial Vehicles (UAVs) and other commercial, military and general aviation traffic *Stakeholder Need#269*

In future ATM, on a tactical level, real time coordination is needed to ensure that all TSA airspace is made available for civil use at the earliest possible moment *Stakeholder Need#509*

Limitations in the data exchange between military and civil systems should not impose constraints on civilian developments *Stakeholder Need#468*



Mandating avionic capabilities must be on the basis of global standards in order to cater for the interoperability of aircraft flying into or coming from regions outside Europe	Stakeholder Need#377
Need for advanced Information Management in support of MET service provision	Stakeholder Need#243
Need for the uniform application of airspace classification throughout Europe	Stakeholder Need#250
The ATM network should be able to accommodate military missions and special flights; in particular aerial refueling, formation flights and long duration flights	Stakeholder Need#511
The interoperability between ATM and military air command and control systems should provide the unrestricted, timely and accurate exchange of relevant information	Stakeholder Need#291
The military have a need for airspace to support, among other operations, their training activities. The need to interface and communicate with civilian ATM systems has been recognised	Stakeholder Need#109

### 3.6.7 Optimisation

Theme#23

<b>Is Theme of:</b>	Relationship#16
ATM must provide capacity where and when needed. To achieve this, the ATM network must ensure optimum use of available capacity by optimisation tools	Stakeholder Need#461
ATM should attempt to minimise the environmental impact of air traffic by providing flexibility which allows as many optimal trajectories, defined by the operator, as possible	Stakeholder Need#397
Efficient coding and data compression techniques must be used for transferring weather data between air and ground	Stakeholder Need#341
Met Service Providers have a number of requirements regarding better Information Management	Stakeholder Need#444
Need for a gate-to-gate approach to ATM	Stakeholder Need#321
Need for optimised departure/arrival sequencing and taxi routing	Stakeholder Need#364
Service provision should be personalised to the needs of each individual flight to a very high degree	Stakeholder Need#303
Strategic Airspace Management should perform a continuous optimisation of the RNAV routes	Stakeholder Need#450
The intermodal transport system in Europe should be optimised for the travelling public in terms of travelling time, cost and environmental impact	Stakeholder Need#300
The users want to see the ATM network to be cost efficient as a whole: the total cost of providing the whole set of services should be minimised, to keep the total cost base at a minimum	Stakeholder Need#326



## 3.6.8 Performance

Theme#24

### Includes:

Accuracy  
Capacity  
Efficiency  
Timeliness

Relationship#28

Theme#25

Theme#28

Theme#50

Theme#31

### Is Theme of:

Relationship#16

A performance review system needs to be established on supra-national level in order to provide feedback about the overall performance of ATM operations

Stakeholder Need#390

Environmental gains, together with any associated environmental related penalties, must be clearly spelt out in the Strategy

Stakeholder Need#515

GA needs indiscriminatory access to controlled airspace by aircraft with different performance levels, coupled with adequate C/B ratios, fair charging principles and ongoing ATM performance review

Stakeholder Need#259

The evolution of the cost and quality of ATM services should be driven by the requirement not to impair the competitiveness of the European air transport industry

Stakeholder Need#368

The system shall be capable of Quality Control Analysis. i.e. measure how well all performance targets are being met

Stakeholder Need#393

### 3.6.8.1 Accuracy

Theme#25

### Includes:

Magnitude of Error  
Probability of Error (uncertainty)

Relationship#28

Theme#26

Theme#27

### Is Theme of:

Relationship#16

Accurate and reliable airborne navigation systems providing RNAV capability are urgently required

Stakeholder Need#455

Met Service Providers have a number of requirements regarding better Information Management

Stakeholder Need#387

Met Service Providers have a number of requirements regarding better Information Management

Stakeholder Need#444

Need for a European AIS Database (EAD)

Stakeholder Need#348

Need for A-SMGCS at major airports

Stakeholder Need#458

Need for advanced Information Management in AIS

Stakeholder Need#495

The interoperability between ATM and military air command and control systems should provide the unrestricted, timely and accurate exchange of relevant information

Stakeholder Need#291

Users ask for a capability to provide Met. information to aircraft in flight via datalink

Stakeholder Need#424

Weather service providers need to know from the ATM designers, which met. model accuracy and resolution is required to satisfy their trajectory prediction requirements

Stakeholder Need#445

### 3.6.8.1.1 Magnitude of Error

Theme#26

#### Is Theme of:

Relationship#16

The wind errors in 18-24 hr forecasts should be reduced to meet the new flight planning accuracy requirements of the airspace users Stakeholder Need#342

### 3.6.8.1.2 Probability of Error (uncertainty)

Theme#27

### 3.6.8.2 Capacity

Theme#28

#### Includes:

Relationship#28

Storage Capacity

Theme#29

Throughput Capacity

Theme#30

#### Is Theme of:

Relationship#16

A-SMGCS is needed at major airports

Stakeholder Need#503

All weather operations at airports should be possible, without significant loss of airport capacity during adverse conditions

Stakeholder Need#331

ATFM has to incorporate flexible capacity management and include consideration of gate-to-gate operations

Stakeholder Need#523

ATM must cater for IFR flight plans filed in the air, and have sufficient spare capacity (slots) to support such extra demand

Stakeholder Need#463

ATM must provide capacity where and when needed. To achieve this, the ATM network must ensure optimum use of available capacity by optimisation tools

Stakeholder Need#461

ATM should be able to deal with the high military traffic volumes and priority rules which can be associated with times of crisis

Stakeholder Need#510

ATM should not play a role in the scheduling of airport capacity, but should be aware of the available airport capacity at all times in

Stakeholder Need#490

order to be able to maximise the use of that capacity

Before introducing ATM changes, evidence must be available that capacity improves while at least maintaining the present flight safety levels Stakeholder Need#464

Being the final decision-maker in an ATM environment providing a high degree of flexibility for flight operations is of prime importance to the users Stakeholder Need#227

Except during short traffic peaks, the system should permanently have spare capacity, so as to enable an adequate level of tactical flexibility

Stakeholder Need#306

General Aviation expects a flexible, cost effective system with responsive capacity management, able to handle a large diversity of aircraft and performance levels

Stakeholder Need#258

Increasing the productivity of the air traffic controllers through the extensive use of computer support tools is a critical factor in finding the extra capacity needed

Stakeholder Need#521

Need for A-SMGCS at major airports

Stakeholder Need#363

Need for advanced ATFM services, in particular increased tactical responsiveness on the basis of CDM principles

Stakeholder Need#57

Need for optimised departure/arrival sequencing and taxi routing

Stakeholder Need#364

Strategic capacity allocation must be based on the projected demand, not on plans imposed by flow management

Stakeholder Need#398

The airport operators require that ATM is able to cope with unexpected changes in airport capacity *Stakeholder Need#441*

The application of flow restrictions should be the exception, not the normal situation *Stakeholder Need#351*

The ATC system should not be the limiting factor for the expansion of airport capacity *Stakeholder Need#491*

The capacity evolution of the ATM network should be driven by market demand *Stakeholder Need#412*

The control capacity at and around airports should not act as a constraint on an airport schedule *Stakeholder Need#330*

The need to increase airport capacity and airport and en-route capacity gains has to be balanced and remain in step if the full benefits of future investments are to be realised *Stakeholder Need#517*

Users suggest to define flight safety indicators, and implement detection (monitoring) and control mechanisms to (automatically ?) limit capacity increases when safety limits/thresholds are reached *Stakeholder Need#308*

### 3.6.8.2.1 Storage Capacity

*Theme#29*

### 3.6.8.2.2 Throughput Capacity

*Theme#30*

#### Is Theme of:

*Relationship#16*

Met Service Providers have a number of requirements regarding better Information Management *Stakeholder Need#444*

### 3.6.8.3 Efficiency

*Theme#50*

#### Is Theme of:

*Relationship#16*

A route and airspace structure must be established which is not affected by national borders but is derived solely from the airspace users' operational requirements *Stakeholder Need#320*

A-SMGCS is needed at major airports *Stakeholder Need#503*

Airlines need a certain degree of departure/arrival flexibility in order to maintain the efficiency of hub-and-spoke networks *Stakeholder Need#325*

All developments in the aviation meteorology field must be cost effective *Stakeholder Need#280*

At major airports, light fixed wing aircraft should be allowed to use STOL runways to avoid using the same runways as heavy fixed wing aircraft *Stakeholder Need#486*

ATM is required not to impose significant irregularities and delays on flight operations *Stakeholder Need#324*

GA operators are seeking simple (low cost) communications means with ATM. A voice communications capability should always be available *Stakeholder Need#423*

It should not be necessary for helicopters to be put on elongated circuits or to fly a whole fixed-wing pattern *Stakeholder Need#439*

Met Service Providers have a number of requirements regarding better Information Management *Stakeholder Need#387*

Need for a gate-to-gate approach to ATM *Stakeholder Need#321*

Need for A-SMGCS at major airports *Stakeholder Need#363*

Operators require special VFR minima for helicopters and VTOL aircraft, plus the possibility to switch back and forth between VFR and IFR as required	Stakeholder Need#419
The airspace division (e.g. FIRs, division between upper/lower airspace, etc.) should be fully transparent to the users during strategic flight planning	Stakeholder Need#454
The cost of services required for the use of airspace by sporting and recreational aviation, should be kept to an absolute minimum	Stakeholder Need#449
The interoperability between ATM and military air command and control systems should provide the unrestricted, timely and accurate exchange of relevant information	Stakeholder Need#291
The users want a highly cost efficient billing system without losing the requirement of fair charging principles	Stakeholder Need#435
The users would not like to see datalink as a simple substitution of current voice communication procedures	Stakeholder Need#360

### 3.6.8.4 Timeliness

Theme#31

<b>Includes:</b>	Relationship#28
Delay	Theme#32
Frequency	Theme#33
Response Time	Theme#34
Synchronisation	Theme#35
<b>Is Theme of:</b>	Relationship#16
Airspace management measures need to be more ambitious and applied by all States. A 'Schengen' approach is needed	Stakeholder Need#522
Communications, Navigation and Surveillance systems have to be developed within a single coherent framework to more aggressive timescales	Stakeholder Need#524
Lead times and pre-notification for mandating new airborne capabilities need to ensure the availability of the equipment incl. certification, and sufficient time for installation and training	Stakeholder Need#494
Met Service Providers have a number of requirements regarding better Information Management	Stakeholder Need#387
Met Service Providers have a number of requirements regarding better Information Management	Stakeholder Need#444
Need for a European AIS Database (EAD)	Stakeholder Need#348
Need for advanced Information Management in AIS	Stakeholder Need#495
Need for advanced Information Management in support of MET service provision	Stakeholder Need#243
Need for timely availability of data exchange standards	Stakeholder Need#501
The interoperability between ATM and military air command and control systems should provide the unrestricted, timely and accurate exchange of relevant information	Stakeholder Need#291
Users express the desire to implement the 4D profile communication capability via datalink early in the ATM transition schedule	Stakeholder Need#359

3.6.8.4.1 **Delay** Theme#32

**Is Theme of:** Relationship#16  
Short haul and regional flights should wait on the ground in case of *Stakeholder Need#361* weather contingencies and be treated fairly with respect to arriving long haul aircraft while they have not taken off yet

3.6.8.4.2 **Frequency** Theme#33

**Is Theme of:** Relationship#16  
Met Service Providers have a number of requirements regarding *Stakeholder Need#444* better Information Management

3.6.8.4.3 **Response Time** Theme#34

3.6.8.4.4 **Synchronisation** Theme#35

3.6.9 **Reliability** Theme#36

**Is Theme of:** Relationship#16  
Accurate and reliable airborne navigation systems providing RNAV *Stakeholder Need#455* capability are urgently required

3.6.10 **Safety & Security** Theme#37

**Includes:** Relationship#28  
Safety Theme#38  
Security Theme#39

**Is Theme of:** Relationship#16  
Before introducing ATM improvements, new possibilities for system *Stakeholder Need#381* failure (in the broadest sense) must be identified, and it must be ensured that their occurrence cannot compromise flight safety  
GA/business aviation users feel strongly about the protection of the *Stakeholder Need#122* emergency VHF/HF frequency  
Need for adequate information security management in the future *Stakeholder Need#384* ATM system  
The airspace users emphasize the need for improved availability of *Stakeholder Need#383* information, for the benefit of increased flight safety  
The human (pilot/controller) should always be in a position to do a *Stakeholder Need#386* final check on the validity of information

3.6.10.1 **Safety** Theme#38

**Is Theme of:** Relationship#16  
A-SMGCS is needed at major airports Stakeholder Need#503  
Airborne collision avoidance systems should remain an Stakeholder Need#313 independent safety net

Availability levels of tactical safety-critical services should be designed around safety objectives; availability of non-safety critical services around C/B principles	Stakeholder Need#218
Before introducing ATM changes, evidence must be available that capacity improves while at least maintaining the present flight safety levels	Stakeholder Need#464
It is the responsibility of ATM to ensure that in each flight phase the current high flight safety levels are at least maintained	Stakeholder Need#380
It should always be possible to change a trajectory in order to handle an in-flight contingency. Partial system failure on the ground should never have an impact on flight safety	Stakeholder Need#382
Met Service Providers have a number of requirements regarding better Information Management	Stakeholder Need#387
Need for A-SMGCS at major airports	Stakeholder Need#363
Need for A-SMGCS at major airports	Stakeholder Need#458
Need for suitable assessment and monitoring of the flight safety level, to be based on the existence and performance of the various 'collision risk management' mechanisms	Stakeholder Need#465
Pilots want access to the right traffic information (on-board) in order to take emergency actions and avoid other traffic	Stakeholder Need#508
Pilots want to have access to a human being on the ground (controller), particularly in case of emergency	Stakeholder Need#426
Safety is paramount and the need to improve safety levels in the face of increasing demand must be emphasised	Stakeholder Need#514
Situational awareness without information overload is essential to flight safety	Stakeholder Need#467
The current level of flight safety must be maintained and where feasible improved. Low visibility operations at major airports is seen as such an area where flight safety could be improved	Stakeholder Need#369
The quality assurance of source data (navigation data, clearances etc.) is becoming a real flight safety issue	Stakeholder Need#310
The system and/or the controller will have to keep airspace free to allow the pilot to deviate from his clearance in case of emergency	Stakeholder Need#428
The users want mechanisms to ensure that emergency related message exchanges (on whatever communication medium) have priority over all other communications	Stakeholder Need#425
Users desire a ground based trajectory deviation monitoring function	Stakeholder Need#87
Users require the provision of adequate flight safety in a very high traffic density environment	Stakeholder Need#466
Users suggest to define flight safety indicators, and implement detection (monitoring) and control mechanisms to (automatically ?) limit capacity increases when safety limits/thresholds are reached	Stakeholder Need#308

### 3.6.10.2 Security

Theme#39

#### Is Theme of:

Relationship#16

Need for a gate-to-gate approach to ATM

Stakeholder Need#321

Need for adequate security management of accident/incident data

Stakeholder Need#430

Need for information security management as an essential element in the protection of flight safety, commercial and military interests (confidentiality, consistency, integrity, etc.)

Stakeholder Need#385



The final decision on allocation of a trajectory and eventual changes must always remain with the aircraft operators

Stakeholder Need#322

### 3.6.11 Survivability

Theme#40

#### Is Theme of:

Relationship#16

ATM should contain internal redundancies and reconfiguration capabilities as needed to deliver a normal quality of service under the circumstances of equipment failures, faults, human error, etc.

Stakeholder Need#357

Availability levels of tactical safety-critical services should be designed around safety objectives; availability of non-safety critical services around C/B principles

Stakeholder Need#218

Controllers, pilots and airline ops controllers need to have the authority and means to deal with in-flight contingencies. Nevertheless contingency scenarios are useful to facilitate tactical response

Stakeholder Need#347

In case of ATM service degradation, airspace users want visibility i.e. knowledge on service quality expected, information about the degradation of ATM operations, ATC resources, means

Stakeholder Need#358

It should always be possible to change a trajectory in order to handle an in-flight contingency. Partial system failure on the ground should never have an impact on flight safety

Stakeholder Need#382

Met Service Providers have a number of requirements regarding better Information Management

Stakeholder Need#387

Need for advanced ATFM services, in particular increased tactical responsiveness on the basis of CDM principles

Stakeholder Need#57

Pilots and controllers should have, at all times, precise knowledge of the nature, probability and extent of possible contingencies, and of the latest applicable contingency plans

Stakeholder Need#312

Pilots want to have access to a human being on the ground (controller), particularly in case of emergency

Stakeholder Need#426

The airport operators require that ATM is able to cope with unexpected changes in airport capacity

Stakeholder Need#441

The system should strike the right balance between robustness and fallback procedures

Stakeholder Need#311

The system's resilience to service disruption must be at least the same as today

Stakeholder Need#15

Users want pre-coordinated contingency plans to take into account exceptional events such as weather, labour disputes, unforeseen breakdown of ATM system components, etc.

Stakeholder Need#413

### 3.6.12 Usability

Theme#41

#### Is Theme of:

Relationship#16

The airspace division (e.g. FIRs, division between upper/lower airspace, etc.) should be fully transparent to the users during strategic flight planning

Stakeholder Need#454

The procedures for completing and submitting flight plans should be simplified

Stakeholder Need#474

## 3.7 Meteorological Conditions

Theme#12

### Includes:

Poor Weather Conditions

Relationship#28

Theme#13

### Is Theme of:

A number of terminal area weather parameters are to be forecasted and nowcasted

Relationship#16

Stakeholder Need#337

Aircraft which cannot fly above the weather, or have poor navigation performance or de-icing, need special Met. information to compensate for this handicap

Stakeholder Need#489

Airspace users have a need for aviation weather forecasts four days ahead

Stakeholder Need#245

Airspace users require all relevant enroute weather parameters to be forecasted and nowcasted

Stakeholder Need#338

Airspace users would like to see an increased number of Automatic Weather Observation Systems at uncontrolled airports

Stakeholder Need#459

All developments in the aviation meteorology field must be cost effective

Stakeholder Need#280

All weather operations at airports should be possible, without significant loss of airport capacity during adverse conditions

Stakeholder Need#331

As nowcasting covers part of the needs for elaborating TAFs, special met. forecasts one day ahead are required for pre-tactical flight planning

Stakeholder Need#284

For strategic flight planning purposes, aircraft operators wish access to climatological (statistical) information about enroute and surface (aerodrome) meteorological conditions

Stakeholder Need#469

Need for improved prediction of the onset, cessation and severity of significant weather phenomena at airports

Stakeholder Need#446

Nowcasts should be issued each 15-30 minutes

Stakeholder Need#336

Sporting and recreational aviation has a need for special customised weather forecasts

Stakeholder Need#279

There should be compatibility of weather forecast information from different sources to allow maximum exchange of data

Stakeholder Need#188

Users ask for a capability to provide Met. information to aircraft in flight via datalink

Stakeholder Need#424

### 3.7.1 Poor Weather Conditions

Theme#13

### Includes:

Low Visibility Conditions

Relationship#28

Theme#14

### Is Theme of:

A-SMGCS is needed at major airports

Relationship#16

Stakeholder Need#503



### 3.7.1.1 Low Visibility Conditions

*Theme#14***Is Theme of:***Relationship#16*

Need for A-SMGCS at major airports

*Stakeholder Need#363*

Need for A-SMGCS at major airports

*Stakeholder Need#458*

The current level of flight safety must be maintained and where feasible improved. Low visibility operations at major airports is seen as such an area where flight safety could be improved

*Stakeholder Need#369*

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## URD Chapter 4

# ALPHABETICAL LIST OF STAKEHOLDER NEEDS - CONTENTS

- 4.1 A defined CNS/ATM transition period should be established. *Stakeholder Need#295*  
Detailed technical input to identify redundant equipment will  
be necessary to ensure national cost bases are reduced  
accordingly
- 4.2 A dialogue should be held with ALL airspace user categories *Stakeholder Need#479*  
before introducing any new controlled airspace
- 4.3 A dynamic system for allocation of airspace for civil or *Stakeholder Need#395*  
military use is required to improve overall airspace usage
- 4.4 A flight must be seen by the ATM network as an integral *Stakeholder Need#512*  
coherent process, starting with strategic flight planning and  
ending after the completion of post-flight activities
- 4.5 A mechanism for the resolution of conflicts of interest, when *Stakeholder Need#26*  
there are clearly identified conflicting requirements, must be  
established
- 4.6 A number of terminal area weather parameters are to be *Stakeholder Need#337*  
forecasted and nowcasted
- 4.7 A performance review system needs to be established on *Stakeholder Need#390*  
supra-national level in order to provide feedback about the  
overall performance of ATM operations
- 4.8 A quality control mechanism should exist to check forecasts *Stakeholder Need#286*  
against actual weather
- 4.9 A review and redesign of the low level airspace structure of *Stakeholder Need#456*  
the entire ECAC area should be conducted, to eliminate non-  
essential controlled airspace
- 4.10 A route and airspace structure must be established which is *Stakeholder Need#320*  
not affected by national borders but is derived solely from  
the airspace users' operational requirements
- 4.11 A-SMGCS is needed at major airports *Stakeholder Need#503*
- 4.12 Accurate and reliable airborne navigation systems providing *Stakeholder Need#455*  
RNAV capability are urgently required
- 4.13 Adequate database servers should be available for storage *Stakeholder Need#282*  
and dissemination of met. data, aerodrome products and  
atmospheric data
- 4.14 Air taxi operators have the same requirements as corporate *Stakeholder Need#346*  
business aviation, but cost is a more critical factor
- 4.15 Airborne collision avoidance systems should remain an *Stakeholder Need#313*  
independent safety net

- |      |   |                      |
|------|---|----------------------|
| 4.16 | Aircraft operators desire the planning and execution of departures to be improved with the help of appropriate datalink applications  | Stakeholder Need#442 |
| 4.17 | Aircraft operators want highly up-to-date AIS information regarding the current status the Air Navigation System  | Stakeholder Need#497 |
| 4.18 | Aircraft operators want the flexibility to formulate and modify flight plans as late as possible  | Stakeholder Need#472 |
| 4.19 | Aircraft operators want, throughout the ECAC area, an exemption of the obligation to file a flight plan, for all VFR flights (including international VFR flights) which do not need an ATC clearance | Stakeholder Need#470 |
| 4.20 | Aircraft weather sensor parameters require certain pre-processing before being downlinked to Met. service providers   | Stakeholder Need#334 |
| 4.21 | Aircraft which cannot fly above the weather, or have poor navigation performance or de-icing, need special Met. information to compensate for this handicap   | Stakeholder Need#489 |
| 4.22 | Airlines confirmed that they wish to see standard separation minima applied throughout the whole European ECAC area   | Stakeholder Need#451 |
| 4.23 | Airlines need a certain degree of departure/arrival flexibility in order to maintain the efficiency of hub-and-spoke networks   | Stakeholder Need#325 |
| 4.24 | Airport operators desire close coordination with the CFMU in order to have better knowledge of expected traffic volumes and to improve the predictability of departure and arrival times              | Stakeholder Need#500 |
| 4.25 | Airport operators require the ATM system to provide them with updates on a number of flight parameters via data link, whenever there are relevant changes   | Stakeholder Need#443 |
| 4.26 | Airspace management measures need to be more ambitious and applied by all States. A 'Schengen' approach is needed   | Stakeholder Need#522 |
| 4.27 | Airspace users are willing to communicate position and intentions to others in the ATM system   | Stakeholder Need#288 |
| 4.28 | Airspace users desire an ATC service on the basis of CDM principles while in managed airspace   | Stakeholder Need#487 |
| 4.29 | Airspace users have a basic requirement for up-to-date AIS/MET information and air traffic density forecast products prior to any flight operations   | Stakeholder Need#61  |
| 4.30 | Airspace users have a need for aviation weather forecasts four days ahead   | Stakeholder Need#245 |
| 4.31 | Airspace users re-affirm that they want a flexible use of all airspace  | Stakeholder Need#249 |
| 4.32 | Airspace users request an auditing facility for user charges  | Stakeholder Need#433 |
| 4.33 | Airspace users request performance review mechanisms to ensure cost-effective provision of air traffic services   | Stakeholder Need#414 |

- |      |  |                      |
|------|--|----------------------|
| 4.34 | Airspace users require all relevant enroute weather parameters to be forecasted and nowcasted  | Stakeholder Need#338 |
| 4.35 | Airspace users require equitable treatment in the allocation of airspace and trajectories  | Stakeholder Need#399 |
| 4.36 | Airspace users would like to see an increased number of Automatic Weather Observation Systems at uncontrolled airports   | Stakeholder Need#459 |
| 4.37 | AIS information should be enhanced with corresponding traffic (density) / congestion forecasts and flow restrictions   | Stakeholder Need#496 |
| 4.38 | All developments in the aviation meteorology field must be cost effective  | Stakeholder Need#280 |
| 4.39 | All weather operations at airports should be possible, without significant loss of airport capacity during adverse conditions  | Stakeholder Need#331 |
| 4.40 | Any requirement of increasing the number of VHF com channels (i.e. 8.33 kHz) should be confined to the users who need it   | Stakeholder Need#478 |
| 4.41 | Appropriately equipped and licenced airspace users want, throughout the European ECAC area, the regulatory possibility to land at and to take off from uncontrolled aerodromes in IMC conditions | Stakeholder Need#271 |
| 4.42 | As much as possible, the pilot in command and the controller should have independent situational awareness (for flight safety reasons)   | Stakeholder Need#314 |
| 4.43 | As nowcasting covers part of the needs for elaborating TAFs, special met. forecasts one day ahead are required for pre-tactical flight planning  | Stakeholder Need#284 |
| 4.44 | At major airports, light fixed wing aircraft should be allowed to use STOL runways to avoid using the same runways as heavy fixed wing aircraft  | Stakeholder Need#486 |
| 4.45 | ATFM has to incorporate flexible capacity management and include consideration of gate-to-gate operations  | Stakeholder Need#523 |
| 4.46 | ATM improvements should only be introduced after careful risk mitigation   | Stakeholder Need#499 |
| 4.47 | ATM is required not to impose significant irregularities and delays on flight operations   | Stakeholder Need#324 |
| 4.48 | ATM must cater for IFR flight plans filed in the air, and have sufficient spare capacity (slots) to support such extra demand  | Stakeholder Need#463 |
| 4.49 | ATM must make a balanced trade-off between mandatory capabilities and non-segregation of traffic   | Stakeholder Need#378 |
| 4.50 | ATM must provide capacity where and when needed. To achieve this, the ATM network must ensure optimum use of available capacity by optimisation tools  | Stakeholder Need#461 |
| 4.51 | ATM must provide data and information to allow operators to determine their own operational efficiency   | Stakeholder Need#392 |

- 4.52 ATM needs to be in a position to offer a variety of 2nd choice tactical alternatives in case of the inability of the operator to follow the foreseen flight plan / 4D trajectory *Stakeholder Need#403*
- 4.53 ATM services should be seamless from the users' point of view. There should be a clear distinction between the responsibilities of governments and the management of the ATM system *Stakeholder Need#416*
- 4.54 ATM should accommodate users (GA/business) who want to fly to an airport in close proximity to a major one in order to minimise landing and service charges *Stakeholder Need#457*
- 4.55 ATM should attempt to minimise the environmental impact of air traffic by providing flexibility which allows as many optimal trajectories, defined by the operator, as possible *Stakeholder Need#397*
- 4.56 ATM should be able to deal with the high military traffic volumes and priority rules which can be associated with times of crisis *Stakeholder Need#510*
- 4.57 ATM should be able to handle a mixture of aircraft equipment. However the lowest capability aircraft should not impose the Quality of Service (QoS) for all *Stakeholder Need#370*
- 4.58 ATM should contain internal redundancies and reconfiguration capabilities as needed to deliver a normal quality of service under the circumstances of equipment failures, faults, human error, etc. *Stakeholder Need#357*
- 4.59 ATM should neither inhibit nor require the exercise of the sovereignty of the States over their own airspace *Stakeholder Need#232*
- 4.60 ATM should not play a role in the scheduling of airport capacity, but should be aware of the available airport capacity at all times in order to be able to maximise the use of that capacity *Stakeholder Need#490*
- 4.61 ATM should organise a streaming of traffic with similar speed and climb performance characteristics, and where this is not possible, faster aircraft must be allowed to overtake the slower ones *Stakeholder Need#379*
- 4.62 ATM should remain human-centered in the foreseeable future *Stakeholder Need#73*
- 4.63 ATM should support, and take advantage of aircraft with cockpit traffic information display and ASAS capability *Stakeholder Need#507*
- 4.64 Availability levels of tactical safety-critical services should be designed around safety objectives; availability of non-safety critical services around C/B principles *Stakeholder Need#218*
- 4.65 Balloons primarily need access to airspace below 3000 ft AGL *Stakeholder Need#482*
- 4.66 Before introducing ATM changes, evidence must be available that capacity improves while at least maintaining the present flight safety levels *Stakeholder Need#464*

- 4.67 Before introducing ATM improvements, new possibilities for system failure (in the broadest sense) must be identified, and it must be ensured that their occurrence cannot compromise flight safety *Stakeholder Need#381*
- 4.68 Being the final decision-maker in an ATM environment providing a high degree of flexibility for flight operations is of prime importance to the users *Stakeholder Need#227*
- 4.69 Business aviation needs flexibility on departure times, routing and levels *Stakeholder Need#343*
- 4.70 Certain services like AIS, MET, ARO should be integrated to improve the efficiency of these services to the users *Stakeholder Need#417*
- 4.71 CNS systems for wholly aviation use should be avoided where possible, this will allow costs to be shared by all users. Cost recovery should occur as benefits are received *Stakeholder Need#293*
- 4.72 Cockpit Human Factors should be duly taken into account during the continued evolution of ATM *Stakeholder Need#74*
- 4.73 Collaborative decision making based on improved planning procedures and information management is an important key to a more efficient, flexible and effective ATM system *Stakeholder Need#518*
- 4.74 Collaborative decision making based on improved planning procedures and information management needs to be applied at both the strategic and tactical levels *Stakeholder Need#519*
- 4.75 Communications, Navigation and Surveillance systems have to be developed within a single coherent framework to more aggressive timescales *Stakeholder Need#524*
- 4.76 Controllers, pilots and airline ops controllers need to have the authority and means to deal with in-flight contingencies. Nevertheless contingency scenarios are useful to facilitate tactical response *Stakeholder Need#347*
- 4.77 Corporate business aviation agrees with General Aviation for keeping airports and airspace open to all users *Stakeholder Need#345*
- 4.78 Corporate business aviation shares many requirements with commercial air transport *Stakeholder Need#344*
- 4.79 Cost recovery should be on the basis of real usage of the system, and the principles should be visible to everyone *Stakeholder Need#434*
- 4.80 Data coming from adjacent areas should be processable by the European ATM network in order to provide a seamless transition of flights. This should be on the basis of ICAO standards *Stakeholder Need#394*
- 4.81 Decisions on mandating retrofit of airborne equipment capabilities must be based on cost/benefit analysis *Stakeholder Need#492*
- 4.82 Due to mutual interdependencies, careful consideration of the implementation order for ATM and met. services is needed *Stakeholder Need#278*

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| 4.83 | Due to the need for human acceptance, there must be a stepwise introduction of automation, rather than a big-bang transition   | <i>Stakeholder Need#315</i> |
| 4.84 | During tactical flight-planning, airspace users require highly up-to-date and accurate information on actual weather and forecast conditions   | <i>Stakeholder Need#246</i> |
| 4.85 | ECAC should analyse its ground transition improvement plans and ensure that they will not create new problems in adjacent areas. The airborne ATM elements should be standardised on a global level      | <i>Stakeholder Need#237</i> |
| 4.86 | Efficient coding and data compression techniques must be used for transferring weather data between air and ground   | <i>Stakeholder Need#341</i> |
| 4.87 | English, rather than the local language should be used by all pilots involved in commercial air transport and at large airports so that everyone is aware of the surrounding traffic situation           | <i>Stakeholder Need#388</i> |
| 4.88 | Environmental gains, together with any associated environmental related penalties, must be clearly spelt out in the Strategy   | <i>Stakeholder Need#515</i> |
| 4.89 | European ATM improvements should occur in a regulatory framework duly related to ICAO, while making provisions for the different (most likely slower) pace at which the ICAO annexes are updated         | <i>Stakeholder Need#448</i> |
| 4.90 | Except during short traffic peaks, the system should permanently have spare capacity, so as to enable an adequate level of tactical flexibility  | <i>Stakeholder Need#306</i> |
| 4.91 | Flights with a high statistical punctuality wish to be rewarded for this (e.g. lower charges, preferential treatment in departure / arrival sequencing)  | <i>Stakeholder Need#476</i> |
| 4.92 | For IFR flights, airspace users want 'ATC by exception'  | <i>Stakeholder Need#353</i> |
| 4.93 | For strategic flight planning purposes, aircraft operators wish access to climatological (statistical) information about enroute and surface (aerodrome) meteorological conditions                       | <i>Stakeholder Need#469</i> |
| 4.94 | From an information point of view, A-SMGCS should be fully integrated with the rest of the ATM system  | <i>Stakeholder Need#504</i> |
| 4.95 | Future ASM, app/dep procedures, clearance delivery, traffic separation etc should accommodate the special needs of fast climbing jets, helicopters, VTOL and other aircraft with non-std characteristics | <i>Stakeholder Need#418</i> |
| 4.96 | Future ATM procedures should reduce the environmental impact of air traffic without compromising flight safety   | <i>Stakeholder Need#440</i> |
| 4.97 | Future ATM should accommodate shared (non-segregated) use of airspace between civil (or military) Unmanned Aerial Vehicles (UAVs) and other commercial, military and general aviation traffic            | <i>Stakeholder Need#269</i> |



- 4.98 GA needs indiscriminatory access to controlled airspace by aircraft with different performance levels, coupled with adequate C/B ratios, fair charging principles and ongoing ATM performance review *Stakeholder Need#259*
- 4.99 GA operators are seeking simple (low cost) communications means with ATM. A voice communications capability should always be available *Stakeholder Need#423*
- 4.100 GA operators without weather radar desire the in-flight capability to receive graphical weather information via datalink *Stakeholder Need#260*
- 4.101 GA users want VFR and autonomous flight operations if Met. conditions and airspace classification permit it *Stakeholder Need#420*
- 4.102 GA/business aviation users feel strongly about the protection of the emergency VHF/HF frequency *Stakeholder Need#122*
- 4.103 General Aviation aerobatics takes place in limited areas and does not require more than 4000 ft AGL *Stakeholder Need#485*
- 4.104 General Aviation expects a flexible, cost effective system with responsive capacity management, able to handle a large diversity of aircraft and performance levels *Stakeholder Need#258*
- 4.105 General Aviation needs sufficient UMAS, VFR access to MAS, free flight and dynamic routing, the ability to change flight rules while airborne, and access to information and airports *Stakeholder Need#329*
- 4.106 Groundworthiness certification is becoming an issue because with A/G datalink, the ground system is increasingly to be considered as an extension of the avionics *Stakeholder Need#309*
- 4.107 Human factors should be duly taken into account when considering improvements in the exchange and (cockpit) presentation of meteorological data *Stakeholder Need#277*
- 4.108 If restrictions are confirmed, the CFMU should offer alternative solutions to minimise the deviation from the original requirement *Stakeholder Need#59*
- 4.109 Implementation management mechanisms have to be clearly defined and rigorously enforced *Stakeholder Need#526*
- 4.110 In case of ATM service degradation, airspace users want visibility i.e. knowledge on service quality expected, information about the degradation of ATM operations, ATC resources, means *Stakeholder Need#358*
- 4.111 In future ATM, an enhanced Planned Flight Data (PFD) submission should obviate the need for strategic flight planning (RPL) *Stakeholder Need#473*
- 4.112 In future ATM, certain VFR operations should be possible with a minimum of equipment (e.g. not even VHF radio for gliders and microlights) *Stakeholder Need#421*

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| 4.113 | In future ATM, on a tactical level, real time coordination is needed to ensure that all TSA airspace is made available for civil use at the earliest possible moment                            | <i>Stakeholder Need#509</i> |
| 4.114 | In times of exceptional circumstances, the CFMU should notify the users of the restrictions that are foreseen on the next day   | <i>Stakeholder Need#58</i>  |
| 4.115 | Increasing the productivity of the air traffic controllers through the extensive use of computer support tools is a critical factor in finding the extra capacity needed                        | <i>Stakeholder Need#521</i> |
| 4.116 | It is the responsibility of ATM to ensure that in each flight phase the current high flight safety levels are at least maintained   | <i>Stakeholder Need#380</i> |
| 4.117 | It should always be possible to change a trajectory in order to handle an in-flight contingency. Partial system failure on the ground should never have an impact on flight safety              | <i>Stakeholder Need#382</i> |
| 4.118 | It should be sufficient to send flight plans to a single address for dissemination as appropriate   | <i>Stakeholder Need#471</i> |
| 4.119 | It should not be necessary for helicopters to be put on elongated circuits or to fly a whole fixed-wing pattern   | <i>Stakeholder Need#439</i> |
| 4.120 | It will be important for a quality of service monitoring and control system to form an integral part of the future ATM network  | <i>Stakeholder Need#210</i> |
| 4.121 | Lead times and pre-notification for mandating new airborne capabilities need to ensure the availability of the equipment incl. certification, and sufficient time for installation and training | <i>Stakeholder Need#494</i> |
| 4.122 | Legal liability issues must be clarified as a prerequisite to adding more automation  | <i>Stakeholder Need#317</i> |
| 4.123 | Limitations in the data exchange between military and civil systems should not impose constraints on civilian developments  | <i>Stakeholder Need#468</i> |
| 4.124 | Mandating avionic capabilities must be on the basis of global standards in order to cater for the interoperability of aircraft flying into or coming from regions outside Europe                | <i>Stakeholder Need#377</i> |
| 4.125 | Mandating should be in terms of capabilities and not in terms of equipment  | <i>Stakeholder Need#375</i> |
| 4.126 | Mandating should be in terms of capabilities and not in terms of equipment (GA requirement)   | <i>Stakeholder Need#422</i> |
| 4.127 | Mandatory capabilities at certain locations are accepted if a clear plan is available and adequate C/B ratio benefits have been demonstrated  | <i>Stakeholder Need#376</i> |
| 4.128 | Mechanisms should be put in place to ensure appropriate authority, responsibility and data control of aviation weather information, so that the various parties use a coherent set of Met. data | <i>Stakeholder Need#498</i> |

4.129	Met Service Providers have a number of requirements regarding better Information Management	Stakeholder Need#387
4.130	Met Service Providers have a number of requirements regarding better Information Management	Stakeholder Need#444
4.131	Meteorologists need a better measurement and categorisation of the scale of intensity of meteorological phenomena	Stakeholder Need#335
4.132	Microlights, conventional light aircraft, and helicopters used for recreational flying primarily need uncontrolled airspace below 3000 ft AGL	Stakeholder Need#481
4.133	Model flying takes place in limited areas and does not require more than 4000 ft AGL	Stakeholder Need#484
4.134	Need for a common Cost/Benefit methodology and application of common C/B principles to the entire ECAC area	Stakeholder Need#409
4.135	Need for a European AIS Database (EAD)	Stakeholder Need#348
4.136	Need for a gate-to-gate approach in ATM, to adequately cover ground movement matters	Stakeholder Need#332
4.137	Need for a gate-to-gate approach to ATM	Stakeholder Need#321
4.138	Need for a gate-to-gate approach to ATM	Stakeholder Need#98
4.139	Need for a two-way dialogue between Airspace Management services and aircraft operators	Stakeholder Need#452
4.140	Need for A-SMGCS at major airports	Stakeholder Need#363
4.141	Need for A-SMGCS at major airports	Stakeholder Need#458
4.142	Need for adequate information security management in the future ATM system	Stakeholder Need#384
4.143	Need for adequate security management of accident/incident data	Stakeholder Need#430
4.144	Need for advanced ATFM services, in particular increased tactical responsiveness on the basis of CDM principles	Stakeholder Need#57
4.145	Need for advanced Information Management in AIS	Stakeholder Need#495
4.146	Need for advanced Information Management in support of MET service provision	Stakeholder Need#243
4.147	Need for better exchange of meteorological research information between all parties	Stakeholder Need#447
4.148	Need for comprehensive, up-to-date ASM information during pre-tactical flight-planning	Stakeholder Need#349
4.149	Need for dynamic management of airspace during tactical flight-planning. Operators must have knowledge of the availability of airspace in real-time	Stakeholder Need#350
4.150	Need for early arrival flexibility	Stakeholder Need#88

4.151	Need for equitable airport access and separate ground infrastructure for General Aviation	<i>Stakeholder Need#270</i>
4.152	Need for flexibility in trajectory allocation	<i>Stakeholder Need#405</i>
4.153	Need for improved prediction of the onset, cessation and severity of significant weather phenomena at airports	<i>Stakeholder Need#446</i>
4.154	Need for information security management as an essential element in the protection of flight safety, commercial and military interests (confidentiality, consistency, integrity, etc.)	<i>Stakeholder Need#385</i>
4.155	Need for milestones which bring clear benefits	<i>Stakeholder Need#408</i>
4.156	Need for open access to information to increase airspace capacity for VFR traffic	<i>Stakeholder Need#367</i>
4.157	Need for optimised departure/arrival sequencing and taxi routing	<i>Stakeholder Need#364</i>
4.158	Need for proper user guidance, public funding and professional implementation management for accelerated standardization and certification of available CNS technologies	<i>Stakeholder Need#460</i>
4.159	Need for recording and distribution of data for incident and accident investigation purposes	<i>Stakeholder Need#389</i>
4.160	Need for recording and distribution of data for incident and accident investigation purposes	<i>Stakeholder Need#429</i>
4.161	Need for responsibility and liability regarding information quality assurance in AIS	<i>Stakeholder Need#81</i>
4.162	Need for standardised formatting of weather data	<i>Stakeholder Need#185</i>
4.163	Need for suitable assessment and monitoring of the flight safety level, to be based on the existence and performance of the various 'collision risk management' mechanisms	<i>Stakeholder Need#465</i>
4.164	Need for the application of common Cost/Benefit Analysis principles throughout the ECAC area	<i>Stakeholder Need#502</i>
4.165	Need for the uniform application of airspace classification throughout Europe	<i>Stakeholder Need#250</i>
4.166	Need for timely availability of data exchange standards	<i>Stakeholder Need#501</i>
4.167	Need for User-segmented Cost/Benefit analysis, because the 'average' user does not exist and hence overall C/B ratios are not relevant	<i>Stakeholder Need#410</i>
4.168	Need to accommodate aerial work activities in all airspace	<i>Stakeholder Need#267</i>
4.169	Need to apply CDM and Information Management principles to improve airport/ATM integration	<i>Stakeholder Need#147</i>
4.170	Need to include Met. information into tactical flow management decision making	<i>Stakeholder Need#297</i>

- 4.171 New standardised ATM procedures for a variety of runway configurations should improve the fluidity of traffic with different capabilities at and around airports *Stakeholder Need#362*
- 4.172 Non-discriminatory access to non-ECAC operators, provided mandatory equipment/avionics capability standards are complied with *Stakeholder Need#400*
- 4.173 Nowcasts should be issued each 15-30 minutes *Stakeholder Need#336*
- 4.174 Of all air sports, glider operations have the most extensive airspace requirements. The needs are quite different for altitude flights and cross-country gliding *Stakeholder Need#480*
- 4.175 Operating in the future ATM environment should be possible without special skills and ratings *Stakeholder Need#319*
- 4.176 Operators require special VFR minima for helicopters and VTOL aircraft, plus the possibility to switch back and forth between VFR and IFR as required *Stakeholder Need#419*
- 4.177 Parachuting needs airspace up to FL 120, but only requires this in a limited area and for a short period of time *Stakeholder Need#483*
- 4.178 Pilots and controllers should have, at all times, precise knowledge of the nature, probability and extent of possible contingencies, and of the latest applicable contingency plans *Stakeholder Need#312*
- 4.179 Pilots want access to the right traffic information (on-board) in order to take emergency actions and avoid other traffic *Stakeholder Need#508*
- 4.180 Pilots want to have access to a human being on the ground (controller), particularly in case of emergency *Stakeholder Need#426*
- 4.181 Pre-flight information should be easily accessible to all airspace users, in ways which are tailored to the needs of each specific user group *Stakeholder Need#415*
- 4.182 Pre-operational field trials should be encouraged on local, national and regional levels to the benefit of the future European ATM network *Stakeholder Need#241*
- 4.183 R & D activities needed to support the Strategy have to be identified and prioritised *Stakeholder Need#527*
- 4.184 Rather than ATM based on strict segregation of airspace, users wish an operational concept in which shared use of all airspace for different user groups is safely possible *Stakeholder Need#304*
- 4.185 Regardless of the existence of slot allocation schemes, users wish to have a free choice between departure punctuality and departure flexibility *Stakeholder Need#475*
- 4.186 Safety is paramount and the need to improve safety levels in the face of increasing demand must be emphasised *Stakeholder Need#514*
- 4.187 Service provision should be personalised to the needs of each individual flight to a very high degree *Stakeholder Need#303*

4.188	Short haul and regional flights should wait on the ground in case of weather contingencies and be treated fairly with respect to arriving long haul aircraft while they have not taken off yet	Stakeholder Need#361
4.189	Since weather data and forecasts are perishable, their creation and distribution have timeliness requirements	Stakeholder Need#186
4.190	Situational awareness without information overload is essential to flight safety	Stakeholder Need#467
4.191	Some GA and Aerial Work users want to be able to fly without a flight plan for short haul trips (200-300 nm) between cities and for VFR flights which do not require clearances	Stakeholder Need#261
4.192	Some pilots want the responsibility for separation during normal flight conditions to stay with the ground system	Stakeholder Need#354
4.193	Some VFR users see benefits in having a traffic/AIS/MET situation display for the airspace around the aircraft's position	Stakeholder Need#356
4.194	Sporting and recreational aviation has a need for special customised weather forecasts	Stakeholder Need#279
4.195	Standards for additional capabilities (equipment) for airspace compatibility should be urgently established so that they can be factored in the current designs of UAVs	Stakeholder Need#333
4.196	Strategic Airspace Management should perform a continuous optimisation of the RNAV routes	Stakeholder Need#450
4.197	Strategic capacity allocation must be based on the projected demand, not on plans imposed by flow management	Stakeholder Need#398
4.198	The airport operators require that ATM is able to cope with unexpected changes in airport capacity	Stakeholder Need#441
4.199	The airspace division (e.g. FIRs, division between upper/lower airspace, etc.) should be fully transparent to the users during strategic flight planning	Stakeholder Need#454
4.200	The airspace users emphasize the need for improved availability of information, for the benefit of increased flight safety	Stakeholder Need#383
4.201	The application of flow restrictions should be the exception, not the normal situation	Stakeholder Need#351
4.202	The ATC system should not be the limiting factor for the expansion of airport capacity	Stakeholder Need#491
4.203	The ATM network must provide timely and accurate data in the detail required for cost recovery of its service in a multilaterally consistent manner	Stakeholder Need#391
4.204	The ATM network should be able to accommodate military missions and special flights; in particular aerial refueling, formation flights and long duration flights	Stakeholder Need#511



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| 4.205 | The ATM network should be open to all users. No one should be given priority because of his class of traffic  | <i>Stakeholder Need#65</i>  |
| 4.206 | The ATM transition plan should be coordinated with the aircraft operator plans, such that new airborne capabilities are matched by corresponding ground system functionality in the same time frame     | <i>Stakeholder Need#374</i> |
| 4.207 | The basic ability to ensure one's own separation (in VMC), without any electronic interface with ground facilities or other aircraft, should never be lost  | <i>Stakeholder Need#266</i> |
| 4.208 | The calculation of the optimum 4D trajectory and the final decision on the acceptance of an allocated trajectory must always rely with the operator   | <i>Stakeholder Need#404</i> |
| 4.209 | The capacity evolution of the ATM network should be driven by market demand   | <i>Stakeholder Need#412</i> |
| 4.210 | The charging system for CNS/ATM should be non-discriminatory and cost related, containing a movement related element to cover fixed costs, and a time in the system element to cover variable costs     | <i>Stakeholder Need#294</i> |
| 4.211 | The combination of equipage requirements and benefits should be such that operators are naturally invited to upgrade. This is preferred over the method of imposing or mandating equipment/capabilities | <i>Stakeholder Need#373</i> |
| 4.212 | The control capacity at and around airports should not act as a constraint on an airport schedule   | <i>Stakeholder Need#330</i> |
| 4.213 | The cost of services required for the use of airspace by sporting and recreational aviation, should be kept to an absolute minimum  | <i>Stakeholder Need#449</i> |
| 4.214 | The current level of flight safety must be maintained and where feasible improved. Low visibility operations at major airports is seen as such an area where flight safety could be improved            | <i>Stakeholder Need#369</i> |
| 4.215 | The development of a strategy and transition path towards the Target Concept needs to be done cooperatively between service providers and airspace users  | <i>Stakeholder Need#407</i> |
| 4.216 | The ECAC area should be 'open' for all flights without internal artificial boundaries which require prior overflight permission to be obtained  | <i>Stakeholder Need#411</i> |
| 4.217 | The evolution of the cost and quality of ATM services should be driven by the requirement not to impair the competitiveness of the European air transport industry                                      | <i>Stakeholder Need#368</i> |
| 4.218 | The final decision on allocation of a trajectory and eventual changes must always remain with the aircraft operators  | <i>Stakeholder Need#322</i> |
| 4.219 | The future ATM system has to be based on a benefit-driven approach supported by clear business cases and must incorporate measurable performance targets  | <i>Stakeholder Need#513</i> |

- 4.220 The human (pilot/controller) should always be in a position to do a final check on the validity of information *Stakeholder Need#386*
- 4.221 The human will remain an essential part of the ATM system for the foreseeable future and this has to be taken into account in the early design stages of the enabling systems and infrastructure *Stakeholder Need#520*
- 4.222 The intermodal transport system in Europe should be optimised for the travelling public in terms of travelling time, cost and environmental impact *Stakeholder Need#300*
- 4.223 The interoperability between ATM and military air command and control systems should provide the unrestricted, timely and accurate exchange of relevant information *Stakeholder Need#291*
- 4.224 The long-term expectations regarding charging principles can be found in a number of ICAO and IATA documents *Stakeholder Need#438*
- 4.225 The main environmental role of ATM would be to provide adequate capacity, enabling the users to fly their requested trajectories *Stakeholder Need#327*
- 4.226 The military have a need for airspace to support, among other operations, their training activities. The need to interface and communicate with civilian ATM systems has been recognised *Stakeholder Need#109*
- 4.227 The need to increase airport capacity and airport and en-route capacity gains has to be balanced and remain in step if the full benefits of future investments are to be realised *Stakeholder Need#517*
- 4.228 The operators who have invested in advanced equipment for their aircraft shall be entitled to receive adequate benefits *Stakeholder Need#372*
- 4.229 The principle of 'Bench Marking' should be adopted in conjunction with the establishment of performance standards *Stakeholder Need#296*
- 4.230 The principle of 'no routine voice' communications should apply to all flight phases (ground/ground and air/ground communications) *Stakeholder Need#352*
- 4.231 The procedures for completing and submitting flight plans should be simplified *Stakeholder Need#474*
- 4.232 The quality assurance of source data (navigation data, clearances etc.) is becoming a real flight safety issue *Stakeholder Need#310*
- 4.233 The right of access to airspace for all users must be a central objective *Stakeholder Need#516*
- 4.234 The role of essential services such as meteorology and AIS has to be recognised and statements concerning national defence needs and military requirements strengthened and expanded *Stakeholder Need#525*
- 4.235 The services rendered by ATM should in principle not be compulsory but basically offered and be made available to all categories of users whenever they need them *Stakeholder Need#292*



- 4.236 The sovereignty of States over their own airspace should not hinder a flexible, optimized use of airspace according to the airspace users' operational needs *Stakeholder Need#305*
- 4.237 The system and/or the controller will have to keep airspace free to allow the pilot to deviate from his clearance in case of emergency *Stakeholder Need#428*
- 4.238 The system shall be capable of Quality Control Analysis. i.e. measure how well all performance targets are being met *Stakeholder Need#393*
- 4.239 The system should remain human centered for the foreseeable time, and the needs of human operators (pilots and controllers) must be duly taken into account *Stakeholder Need#396*
- 4.240 The system should strike the right balance between robustness and fallback procedures *Stakeholder Need#311*
- 4.241 The system's resilience to service disruption must be at least the same as today *Stakeholder Need#15*
- 4.242 The users see a need to provide a 'pull' strategy to provide the incentive for the shortest transition period possible (simultaneous support of old and new functionality) *Stakeholder Need#38*
- 4.243 The users want a cost recovery system which is fully integrated with the ATM system *Stakeholder Need#431*
- 4.244 The users want a highly cost efficient billing system without losing the requirement of fair charging principles *Stakeholder Need#435*
- 4.245 The users want mechanisms to ensure that emergency related message exchanges (on whatever communication medium) have priority over all other communications *Stakeholder Need#425*
- 4.246 The users want to see the ATM network to be cost efficient as a whole: the total cost of providing the whole set of services should be minimised, to keep the total cost base at a minimum *Stakeholder Need#326*
- 4.247 The users would not like to see datalink as a simple substitution of current voice communication procedures *Stakeholder Need#360*
- 4.248 The wind errors in 18-24 hr forecasts should be reduced to meet the new flight planning accuracy requirements of the airspace users *Stakeholder Need#342*
- 4.249 There is a requirement to examine who has the responsibility for the certification of met equipment, personnel and met products for aeronautical services *Stakeholder Need#200*
- 4.250 There should be a clearly defined mechanism to ensure a continuous two-way dialogue with the users regarding the evolution of ATM *Stakeholder Need#328*
- 4.251 There should be compatibility of weather forecast information from different sources to allow maximum exchange of data *Stakeholder Need#188*

4.252	There should be no obligation to file ATS flight plans for cross-border flights conducted according to VFR within the EU	Stakeholder Need#264
4.253	Training and familiarisation must be possible in the ATM transition schedule	Stakeholder Need#406
4.254	Under no circumstances should airspace users be required to pay for services not used / received	Stakeholder Need#477
4.255	Under no circumstances should airspace users pay twice for a given service	Stakeholder Need#437
4.256	Use of conventionally equipped aircraft in ECAC airspace should not be made impossible	Stakeholder Need#371
4.257	User charging should be based on the principle of a basic service defined as a common cost base, plus optional services which should only be paid for as used	Stakeholder Need#436
4.258	User consultation is essential in order to achieve suitable retrofit schedules	Stakeholder Need#493
4.259	Users are looking for AIS/MET self-briefing facilities at all aerodromes and from home via personal computer through the Internet	Stakeholder Need#365
4.260	Users ask for a capability to provide Met. information to aircraft in flight via datalink	Stakeholder Need#424
4.261	Users desire a ground based trajectory deviation monitoring function	Stakeholder Need#87
4.262	Users desire flexible use of terminal airspace, with mandatory SIDs and STARs eliminated as much as possible	Stakeholder Need#488
4.263	Users desire fully automated facilities for direct, personal flight plan filing, available at all aerodromes and from home via personal computer through the Internet	Stakeholder Need#366
4.264	Users desire to see all airport, enroute and other service charges on a single bill for each flight	Stakeholder Need#432
4.265	Users express the desire to implement the 4D profile communication capability via datalink early in the ATM transition schedule	Stakeholder Need#359
4.266	Users regard the Global Navigation Satellite System (GNSS) as the future navigation infrastructure	Stakeholder Need#505
4.267	Users require the provision of adequate flight safety in a very high traffic density environment	Stakeholder Need#466
4.268	Users suggest to define flight safety indicators, and implement detection (monitoring) and control mechanisms to (automatically ?) limit capacity increases when safety limits/thresholds are reached	Stakeholder Need#308
4.269	Users want flexibility with regard to navigational equipment used	Stakeholder Need#506

4.270	Users want pre-coordinated contingency plans to take into account exceptional events such as weather, labour disputes, unforeseen breakdown of ATM system components, etc.	<i>Stakeholder Need#413</i>
4.271	Users want surveillance services compatible with global standards. Surveillance coverage should exist throughout the complete European ECAC area	<i>Stakeholder Need#252</i>
4.272	Users wish that in future European ATM the human is still the decision maker	<i>Stakeholder Need#316</i>
4.273	Weather service providers need mechanisms to ensure feedback from users about the quality of their forecasts	<i>Stakeholder Need#339</i>
4.274	Weather service providers need to know from the ATM designers, which met. model accuracy and resolution is required to satisfy their trajectory prediction requirements	<i>Stakeholder Need#445</i>
4.275	Where possible, GA operators wish to conduct their operation independent of the airlines' airspace use (e.g. no use of higher flight levels, use of uncontrolled General Aviation airports)	<i>Stakeholder Need#453</i>
4.276	With agreement of the operators concerned, deviations from the 'first come first served' principle should be allowed in the interest of overall traffic optimization, e.g. at congested airports	<i>Stakeholder Need#402</i>
4.277	Within the strategically laid down capacity framework, as far as feasible being adjusted to demand, ATM must be flexible enough to take short-term changes of the operators' intentions into account	<i>Stakeholder Need#401</i>

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## URD Chapter 4

# ALPHABETICAL LIST OF STAKEHOLDER NEEDS - INDEX

### Stakeholder Need

*ATM stakeholder need as recorded during the user consultation process*

#15	The system's resilience to service disruption must be at least the same as today	4.241
#26	A mechanism for the resolution of conflicts of interest, when there are clearly identified conflicting requirements, must be established	4.5
#38	The users see a need to provide a 'pull' strategy to provide the incentive for the shortest transition period possible (simultaneous support of old and new functionality)	4.242
#57	Need for advanced ATFM services, in particular increased tactical responsiveness on the basis of CDM principles	4.144
#58	In times of exceptional circumstances, the CFMU should notify the users of the restrictions that are foreseen on the next day	4.114
#59	If restrictions are confirmed, the CFMU should offer alternative solutions to minimise the deviation from the original requirement	4.108
#61	Airspace users have a basic requirement for up-to-date AIS/MET information and air traffic density forecast products prior to any flight operations	4.29
#65	The ATM network should be open to all users. No one should be given priority because of his class of traffic	4.205
#73	ATM should remain human-centered in the foreseeable future	4.62
#74	Cockpit Human Factors should be duly taken into account during the continued evolution of ATM	4.72
#81	Need for responsibility and liability regarding information quality assurance in AIS	4.161
#87	Users desire a ground based trajectory deviation monitoring function	4.261
#88	Need for early arrival flexibility	4.150
#98	Need for a gate-to-gate approach to ATM	4.138
#109	The military have a need for airspace to support, among other operations, their training activities. The need to interface and communicate with civilian ATM systems has been recognised	4.226
#122	GA/business aviation users feel strongly about the protection of the emergency VHF/HF frequency	4.102
#147	Need to apply CDM and Information Management principles to improve airport/ATM integration	4.169
#185	Need for standardised formatting of weather data	4.162
#186	Since weather data and forecasts are perishable, their creation and distribution have timeliness requirements	4.189
#188	There should be compatibility of weather forecast information from different sources to allow maximum exchange of data	4.251
#200	There is a requirement to examine who has the responsibility for the certification of met equipment, personnel and met products for aeronautical services	4.249
#210	It will be important for a quality of service monitoring and control system to form an integral part of the future ATM network	4.120

#218	Availability levels of tactical safety-critical services should be designed around safety objectives; availability of non-safety critical services around C/B principles	4.64
#227	Being the final decision-maker in an ATM environment providing a high degree of flexibility for flight operations is of prime importance to the users	4.68
#232	ATM should neither inhibit nor require the exercise of the sovereignty of the States over their own airspace	4.59
#237	ECAC should analyse its ground transition improvement plans and ensure that they will not create new problems in adjacent areas. The airborne ATM elements should be standardised on a global level	4.85
#241	Pre-operational field trials should be encouraged on local, national and regional levels to the benefit of the future European ATM network	4.182
#243	Need for advanced Information Management in support of MET service provision	4.146
#245	Airspace users have a need for aviation weather forecasts four days ahead	4.30
#246	During tactical flight-planning, airspace users require highly up-to-date and accurate information on actual weather and forecast conditions	4.84
#249	Airspace users re-affirm that they want a flexible use of all airspace	4.31
#250	Need for the uniform application of airspace classification throughout Europe	4.165
#252	Users want surveillance services compatible with global standards. Surveillance coverage should exist throughout the complete European ECAC area	4.271
#258	General Aviation expects a flexible, cost effective system with responsive capacity management, able to handle a large diversity of aircraft and performance levels	4.104
#259	GA needs indiscriminatory access to controlled airspace by aircraft with different performance levels, coupled with adequate C/B ratios, fair charging principles and ongoing ATM performance review	4.98
#260	GA operators without weather radar desire the in-flight capability to receive graphical weather information via datalink	4.100
#261	Some GA and Aerial Work users want to be able to fly without a flight plan for short haul trips (200-300 nm) between cities and for VFR flights which do not require clearances	4.191
#264	There should be no obligation to file ATS flight plans for cross-border flights conducted according to VFR within the EU	4.252
#266	The basic ability to ensure one's own separation (in VMC), without any electronic interface with ground facilities or other aircraft, should never be lost	4.207
#267	Need to accommodate aerial work activities in all airspace	4.168
#269	Future ATM should accommodate shared (non-segregated) use of airspace between civil (or military) Unmanned Aerial Vehicles (UAVs) and other commercial, military and general aviation traffic	4.97
#270	Need for equitable airport access and separate ground infrastructure for General Aviation	4.151
#271	Appropriately equipped and licenced airspace users want, throughout the European ECAC area, the regulatory possibility to land at and to take off from uncontrolled aerodromes in IMC conditions	4.41
#277	Human factors should be duly taken into account when considering improvements in the exchange and (cockpit) presentation of meteorological data	4.107
#278	Due to mutual interdependencies, careful consideration of the implementation order for ATM and met. services is needed	4.82

<b>#279</b>	Sporting and recreational aviation has a need for special customised weather forecasts	4.194
<b>#280</b>	All developments in the aviation meteorology field must be cost effective	4.38
<b>#282</b>	Adequate database servers should be available for storage and dissemination of met. data, aerodrome products and atmospheric data	4.13
<b>#284</b>	As nowcasting covers part of the needs for elaborating TAFs, special met. forecasts one day ahead are required for pre-tactical flight planning	4.43
<b>#286</b>	A quality control mechanism should exist to check forecasts against actual weather	4.8
<b>#288</b>	Airspace users are willing to communicate position and intentions to others in the ATM system	4.27
<b>#291</b>	The interoperability between ATM and military air command and control systems should provide the unrestricted, timely and accurate exchange of relevant information	4.223
<b>#292</b>	The services rendered by ATM should in principle not be compulsory but basically offered and be made available to all categories of users whenever they need them	4.235
<b>#293</b>	CNS systems for wholly aviation use should be avoided where possible, this will allow costs to be shared by all users. Cost recovery should occur as benefits are received	4.71
<b>#294</b>	The charging system for CNS/ATM should be non-discriminatory and cost related, containing a movement related element to cover fixed costs, and a time in the system element to cover variable costs	4.210
<b>#295</b>	A defined CNS/ATM transition period should be established. Detailed technical input to identify redundant equipment will be necessary to ensure national cost bases are reduced accordingly	4.1
<b>#296</b>	The principle of 'Bench Marking' should be adopted in conjunction with the establishment of performance standards	4.229
<b>#297</b>	Need to include Met. information into tactical flow management decision making	4.170
<b>#300</b>	The intermodal transport system in Europe should be optimised for the travelling public in terms of travelling time, cost and environmental impact	4.222
<b>#303</b>	Service provision should be personalised to the needs of each individual flight to a very high degree	4.187
<b>#304</b>	Rather than ATM based on strict segregation of airspace, users wish an operational concept in which shared use of all airspace for different user groups is safely possible	4.184
<b>#305</b>	The sovereignty of States over their own airspace should not hinder a flexible, optimized use of airspace according to the airspace users' operational needs	4.236
<b>#306</b>	Except during short traffic peaks, the system should permanently have spare capacity, so as to enable an adequate level of tactical flexibility	4.90
<b>#308</b>	Users suggest to define flight safety indicators, and implement detection (monitoring) and control mechanisms to (automatically ?) limit capacity increases when safety limits/thresholds are reached	4.268
<b>#309</b>	Groundworthiness certification is becoming an issue because with A/G datalink, the ground system is increasingly to be considered as an extension of the avionics	4.106
<b>#310</b>	The quality assurance of source data (navigation data, clearances etc.) is becoming a real flight safety issue	4.232
<b>#311</b>	The system should strike the right balance between robustness and fallback procedures	4.240

#312	Pilots and controllers should have, at all times, precise knowledge of the nature, probability and extent of possible contingencies, and of the latest applicable contingency plans	4.178
#313	Airborne collision avoidance systems should remain an independent safety net	4.15
#314	As much as possible, the pilot in command and the controller should have independent situational awareness (for flight safety reasons)	4.42
#315	Due to the need for human acceptance, there must be a stepwise introduction of automation, rather than a big-bang transition	4.83
#316	Users wish that in future European ATM the human is still the decision maker	4.272
#317	Legal liability issues must be clarified as a prerequisite to adding more automation	4.122
#319	Operating in the future ATM environment should be possible without special skills and ratings	4.175
#320	A route and airspace structure must be established which is not affected by national borders but is derived solely from the airspace users' operational requirements	4.10
#321	Need for a gate-to-gate approach to ATM	4.137
#322	The final decision on allocation of a trajectory and eventual changes must always remain with the aircraft operators	4.218
#324	ATM is required not to impose significant irregularities and delays on flight operations	4.47
#325	Airlines need a certain degree of departure/arrival flexibility in order to maintain the efficiency of hub-and-spoke networks	4.23
#326	The users want to see the ATM network to be cost efficient as a whole: the total cost of providing the whole set of services should be minimised, to keep the total cost base at a minimum	4.246
#327	The main environmental role of ATM would be to provide adequate capacity enabling the users to fly their requested trajectories	4.225
#328	There should be a clearly defined mechanism to ensure a continuous two-way dialogue with the users regarding the evolution of ATM	4.250
#329	General Aviation needs sufficient UMAS, VFR access to MAS, free flight and dynamic routing, the ability to change flight rules while airborne, and access to information and airports	4.105
#330	The control capacity at and around airports should not act as a constraint on an airport schedule	4.212
#331	All weather operations at airports should be possible, without significant loss of airport capacity during adverse conditions	4.39
#332	Need for a gate-to-gate approach in ATM, to adequately cover ground movement matters	4.136
#333	Standards for additional capabilities (equipment) for airspace compatibility should be urgently established so that they can be factored in the current designs of UAVs	4.195
#334	Aircraft weather sensor parameters require certain pre-processing before being downlinked to Met. service providers	4.20
#335	Meteorologists need a better measurement and categorisation of the scale of intensity of meteorological phenomena	4.131
#336	Nowcasts should be issued each 15-30 minutes	4.173
#337	A number of terminal area weather parameters are to be forecasted and nowcasted	4.6
#338	Airspace users require all relevant enroute weather parameters to be forecasted and nowcasted	4.34



#339	Weather service providers need mechanisms to ensure feedback from users about the quality of their forecasts	4.273
#341	Efficient coding and data compression techniques must be used for transferring weather data between air and ground	4.86
#342	The wind errors in 18-24 hr forecasts should be reduced to meet the new flight planning accuracy requirements of the airspace users	4.248
#343	Business aviation needs flexibility on departure times, routing and levels	4.69
#344	Corporate business aviation shares many requirements with commercial air transport	4.78
#345	Corporate business aviation agrees with General Aviation for keeping airports and airspace open to all users	4.77
#346	Air taxi operators have the same requirements as corporate business aviation, but cost is a more critical factor	4.14
#347	Controllers, pilots and airline ops controllers need to have the authority and means to deal with in-flight contingencies. Nevertheless contingency scenarios are useful to facilitate tactical response	4.76
#348	Need for a European AIS Database (EAD)	4.135
#349	Need for comprehensive, up-to-date ASM information during pre-tactical flight-planning	4.148
#350	Need for dynamic management of airspace during tactical flight-planning. Operators must have knowledge of the availability of airspace in real-time	4.149
#351	The application of flow restrictions should be the exception, not the normal situation	4.201
#352	The principle of 'no routine voice' communications should apply to all flight phases (ground/ground and air/ground communications)	4.230
#353	For IFR flights, airspace users want 'ATC by exception'	4.92
#354	Some pilots want the responsibility for separation during normal flight conditions to stay with the ground system	4.192
#356	Some VFR users see benefits in having a traffic/AIS/MET situation display for the airspace around the aircraft's position	4.193
#357	ATM should contain internal redundancies and reconfiguration capabilities as needed to deliver a normal quality of service under the circumstances of equipment failures, faults, human error, etc.	4.58
#358	In case of ATM service degradation, airspace users want visibility i.e. knowledge on service quality expected, information about the degradation of ATM operations, ATC resources, means	4.110
#359	Users express the desire to implement the 4D profile communication capability via datalink early in the ATM transition schedule	4.265
#360	The users would not like to see datalink as a simple substitution of current voice communication procedures	4.247
#361	Short haul and regional flights should wait on the ground in case of weather contingencies and be treated fairly with respect to arriving long haul aircraft while they have not taken off yet	4.188
#362	New standardised ATM procedures for a variety of runway configurations should improve the fluidity of traffic with different capabilities at and around airports	4.171
#363	Need for A-SMGCS at major airports	4.140
#364	Need for optimised departure/arrival sequencing and taxi routing	4.157
#365	Users are looking for AIS/MET self-briefing facilities at all aerodromes and from home via personal computer through the Internet	4.259
#366	Users desire fully automated facilities for direct, personal flight plan filing, available at all aerodromes and from home via personal computer through the Internet	4.263

<b>#367</b>	Need for open access to information to increase airspace capacity for VFR traffic	4.156
<b>#368</b>	The evolution of the cost and quality of ATM services should be driven by the requirement not to impair the competitiveness of the European air transport industry	4.217
<b>#369</b>	The current level of flight safety must be maintained and where feasible improved. Low visibility operations at major airports is seen as such an area where flight safety could be improved	4.214
<b>#370</b>	ATM should be able to handle a mixture of aircraft equipment. However the lowest capability aircraft should not impose the Quality of Service (QoS) for all	4.57
<b>#371</b>	Use of conventionally equipped aircraft in ECAC airspace should not be made impossible	4.256
<b>#372</b>	The operators who have invested in advanced equipment for their aircraft shall be entitled to receive adequate benefits	4.228
<b>#373</b>	The combination of equipage requirements and benefits should be such that operators are naturally invited to upgrade. This is preferred over the method of imposing or mandating equipment/capabilities	4.211
<b>#374</b>	The ATM transition plan should be coordinated with the aircraft operator plans, such that new airborne capabilities are matched by corresponding ground system functionality in the same time frame	4.206
<b>#375</b>	Mandating should be in terms of capabilities and not in terms of equipment	4.125
<b>#376</b>	Mandatory capabilities at certain locations are accepted if a clear plan is available and adequate C/B ratio benefits have been demonstrated	4.127
<b>#377</b>	Mandating avionic capabilities must be on the basis of global standards in order to cater for the interoperability of aircraft flying into or coming from regions outside Europe	4.124
<b>#378</b>	ATM must make a balanced trade-off between mandatory capabilities and non-segregation of traffic	4.49
<b>#379</b>	ATM should organise a streaming of traffic with similar speed and climb performance characteristics, and where this is not possible, faster aircraft must be allowed to overtake the slower ones	4.61
<b>#380</b>	It is the responsibility of ATM to ensure that in each flight phase the current high flight safety levels are at least maintained	4.116
<b>#381</b>	Before introducing ATM improvements, new possibilities for system failure (in the broadest sense) must be identified, and it must be ensured that their occurrence cannot compromise flight safety	4.67
<b>#382</b>	It should always be possible to change a trajectory in order to handle an in-flight contingency. Partial system failure on the ground should never have an impact on flight safety	4.117
<b>#383</b>	The airspace users emphasize the need for improved availability of information, for the benefit of increased flight safety	4.200
<b>#384</b>	Need for adequate information security management in the future ATM system	4.142
<b>#385</b>	Need for information security management as an essential element in the protection of flight safety, commercial and military interests (confidentiality, consistency, integrity, etc.)	4.154
<b>#386</b>	The human (pilot/controller) should always be in a position to do a final check on the validity of information	4.220
<b>#387</b>	Met Service Providers have a number of requirements regarding better Information Management	4.129

#388	English, rather than the local language should be used by all pilots involved in commercial air transport and at large airports so that everyone is aware of the surrounding traffic situation	4.87
#389	Need for recording and distribution of data for incident and accident investigation purposes	4.159
#390	A performance review system needs to be established on supra-national level in order to provide feedback about the overall performance of ATM operations	4.7
#391	The ATM network must provide timely and accurate data in the detail required for cost recovery of its service in a multilaterally consistent manner	4.203
#392	ATM must provide data and information to allow operators to determine their own operational efficiency	4.51
#393	The system shall be capable of Quality Control Analysis. i.e. measure how well all performance targets are being met	4.238
#394	Data coming from adjacent areas should be processable by the European ATM network in order to provide a seamless transition of flights. This should be on the basis of ICAO standards	4.80
#395	A dynamic system for allocation of airspace for civil or military use is required to improve overall airspace usage	4.3
#396	The system should remain human centered for the foreseeable time, and the needs of human operators (pilots and controllers) must be duly taken into account	4.239
#397	ATM should attempt to minimise the environmental impact of air traffic by providing flexibility which allows as many optimal trajectories, defined by the operator, as possible	4.55
#398	Strategic capacity allocation must be based on the projected demand, not on plans imposed by flow management	4.197
#399	Airspace users require equitable treatment in the allocation of airspace and trajectories	4.35
#400	Non-discriminatory access to non-ECAC operators, provided mandatory equipment/avionics capability standards are complied with	4.172
#401	Within the strategically laid down capacity framework, as far as feasible being adjusted to demand, ATM must be flexible enough to take short-term changes of the operators' intentions into account	4.277
#402	With agreement of the operators concerned, deviations from the 'first come first served' principle should be allowed in the interest of overall traffic optimization, e.g. at congested airports	4.276
#403	ATM needs to be in a position to offer a variety of 2nd choice tactical alternatives in case of the inability of the operator to follow the foreseen flight plan / 4D trajectory	4.52
#404	The calculation of the optimum 4D trajectory and the final decision on the acceptance of an allocated trajectory must always rely with the operator	4.208
#405	Need for flexibility in trajectory allocation	4.152
#406	Training and familiarisation must be possible in the ATM transition schedule	4.253
#407	The development of a strategy and transition path towards the Target Concept needs to be done cooperatively between service providers and airspace users	4.215
#408	Need for milestones which bring clear benefits	4.155
#409	Need for a common Cost/Benefit methodology and application of common C/B principles to the entire ECAC area	4.134
#410	Need for User-segmented Cost/Benefit analysis, because the 'average' user does not exist and hence overall C/B ratios are not relevant	4.167

<b>#411</b>	The ECAC area should be 'open' for all flights without internal artificial boundaries which require prior overflight permission to be obtained	4.216
<b>#412</b>	The capacity evolution of the ATM network should be driven by market demand	4.209
<b>#413</b>	Users want pre-coordinated contingency plans to take into account exceptional events such as weather, labour disputes, unforeseen breakdown of ATM system components, etc.	4.270
<b>#414</b>	Airspace users request performance review mechanisms to ensure cost-effective provision of air traffic services	4.33
<b>#415</b>	Pre-flight information should be easily accessible to all airspace users, in ways which are tailored to the needs of each specific user group	4.181
<b>#416</b>	ATM services should be seamless from the users' point of view. There should be a clear distinction between the responsibilities of governments and the management of the ATM system	4.53
<b>#417</b>	Certain services like AIS, MET, ARO should be integrated to improve the efficiency of these services to the users	4.70
<b>#418</b>	Future ASM, app/dep procedures, clearance delivery, traffic separation etc should accommodate the special needs of fast climbing jets, helicopters, VTOL and other aircraft with non-std characteristics	4.95
<b>#419</b>	Operators require special VFR minima for helicopters and VTOL aircraft, plus the possibility to switch back and forth between VFR and IFR as required	4.176
<b>#420</b>	GA users want VFR and autonomous flight operations if Met. conditions and airspace classification permit it	4.101
<b>#421</b>	In future ATM, certain VFR operations should be possible with a minimum of equipment (e.g. not even VHF radio for gliders and microlights)	4.112
<b>#422</b>	Mandating should be in terms of capabilities and not in terms of equipment (GA requirement)	4.126
<b>#423</b>	GA operators are seeking simple (low cost) communications means with ATM. A voice communications capability should always be available	4.99
<b>#424</b>	Users ask for a capability to provide Met. information to aircraft in flight via datalink	4.260
<b>#425</b>	The users want mechanisms to ensure that emergency related message exchanges (on whatever communication medium) have priority over all other communications	4.245
<b>#426</b>	Pilots want to have access to a human being on the ground (controller), particularly in case of emergency	4.180
<b>#428</b>	The system and/or the controller will have to keep airspace free to allow the pilot to deviate from his clearance in case of emergency	4.237
<b>#429</b>	Need for recording and distribution of data for incident and accident investigation purposes	4.160
<b>#430</b>	Need for adequate security management of accident/incident data	4.143
<b>#431</b>	The users want a cost recovery system which is fully integrated with the ATM system	4.243
<b>#432</b>	Users desire to see all airport, enroute and other service charges on a single bill for each flight	4.264
<b>#433</b>	Airspace users request an auditing facility for user charges	4.32
<b>#434</b>	Cost recovery should be on the basis of real usage of the system, and the principles should be visible to everyone	4.79
<b>#435</b>	The users want a highly cost efficient billing system without losing the requirement of fair charging principles	4.244
<b>#436</b>	User charging should be based on the principle of a basic service defined as a common cost base, plus optional services which should only be paid for as used	4.257

#437	Under no circumstances should airspace users pay twice for a given service	4.255
#438	The long-term expectations regarding charging principles can be found in a number of ICAO and IATA documents	4.224
#439	It should not be necessary for helicopters to be put on elongated circuits or to fly a whole fixed-wing pattern	4.119
#440	Future ATM procedures should reduce the environmental impact of air traffic without compromising flight safety	4.96
#441	The airport operators require that ATM is able to cope with unexpected changes in airport capacity	4.198
#442	Aircraft operators desire the planning and execution of departures to be improved with the help of appropriate datalink applications	4.16
#443	Airport operators require the ATM system to provide them with updates on a number of flight parameters via data link, whenever there are relevant changes	4.25
#444	Met Service Providers have a number of requirements regarding better Information Management	4.130
#445	Weather service providers need to know from the ATM designers, which met. model accuracy and resolution is required to satisfy their trajectory prediction requirements	4.274
#446	Need for improved prediction of the onset, cessation and severity of significant weather phenomena at airports	4.153
#447	Need for better exchange of meteorological research information between all parties	4.147
#448	European ATM improvements should occur in a regulatory framework duly related to ICAO, while making provisions for the different (most likely slower) pace at which the ICAO annexes are updated	4.89
#449	The cost of services required for the use of airspace by sporting and recreational aviation, should be kept to an absolute minimum	4.213
#450	Strategic Airspace Management should perform a continuous optimisation of the RNAV routes	4.196
#451	Airlines confirmed that they wish to see standard separation minima applied throughout the whole European ECAC area	4.22
#452	Need for a two-way dialogue between Airspace Management services and aircraft operators	4.139
#453	Where possible, GA operators wish to conduct their operation independent of the airlines' airspace use (e.g. no use of higher flight levels, use of uncontrolled General Aviation airports)	4.275
#454	The airspace division (e.g. FIRs, division between upper/lower airspace, etc.) should be fully transparent to the users during strategic flight planning	4.199
#455	Accurate and reliable airborne navigation systems providing RNAV capability are urgently required	4.12
#456	A review and redesign of the low level airspace structure of the entire ECAC area should be conducted, to eliminate non-essential controlled airspace	4.9
#457	ATM should accommodate users (GA/business) who want to fly to an airport in close proximity to a major one in order to minimise landing and service charges	4.54
#458	Need for A-SMGCS at major airports	4.141
#459	Airspace users would like to see an increased number of Automatic Weather Observation Systems at uncontrolled airports	4.36
#460	Need for proper user guidance, public funding and professional implementation management for accelerated standardization and certification of available CNS technologies	4.158

#461	ATM must provide capacity where and when needed. To achieve this, the ATM network must ensure optimum use of available capacity by optimisation tools	4.50
#463	ATM must cater for IFR flight plans filed in the air, and have sufficient spare capacity (slots) to support such extra demand	4.48
#464	Before introducing ATM changes, evidence must be available that capacity improves while at least maintaining the present flight safety levels	4.66
#465	Need for suitable assessment and monitoring of the flight safety level, to be based on the existence and performance of the various 'collision risk management' mechanisms	4.163
#466	Users require the provision of adequate flight safety in a very high traffic density environment	4.267
#467	Situational awareness without information overload is essential to flight safety	4.190
#468	Limitations in the data exchange between military and civil systems should not impose constraints on civilian developments	4.123
#469	For strategic flight planning purposes, aircraft operators wish access to climatological (statistical) information about enroute and surface (aerodrome) meteorological conditions	4.93
#470	Aircraft operators want, throughout the ECAC area, an exemption of the obligation to file a flight plan, for all VFR flights (including international VFR flights) which do not need an ATC clearance	4.19
#471	It should be sufficient to send flight plans to a single address for dissemination as appropriate	4.118
#472	Aircraft operators want the flexibility to formulate and modify flight plans as late as possible	4.18
#473	In future ATM, an enhanced Planned Flight Data (PFD) submission should obviate the need for strategic flight planning (RPL)	4.111
#474	The procedures for completing and submitting flight plans should be simplified	4.231
#475	Regardless of the existence of slot allocation schemes, users wish to have a free choice between departure punctuality and departure flexibility	4.185
#476	Flights with a high statistical punctuality wish to be rewarded for this (e.g. lower charges, preferential treatment in departure / arrival sequencing)	4.91
#477	Under no circumstances should airspace users be required to pay for services not used / received	4.254
#478	Any requirement of increasing the number of VHF com channels (i.e. 8.33 kHz) should be confined to the users who need it	4.40
#479	A dialogue should be held with ALL airspace user categories before introducing any new controlled airspace	4.2
#480	Of all air sports, glider operations have the most extensive airspace requirements. The needs are quite different for altitude flights and cross-country gliding	4.174
#481	Microlights, conventional light aircraft, and helicopters used for recreational flying primarily need uncontrolled airspace below 3000 ft AGL	4.132
#482	Balloons primarily need access to airspace below 3000 ft AGL	4.65
#483	Parachuting needs airspace up to FL 120, but only requires this in a limited area and for a short period of time	4.177
#484	Modelflying takes place in limited areas and does not require more than 4000 ft AGL	4.133
#485	General Aviation aerobatics takes place in limited areas and does not require more than 4000 ft AGL	4.103
#486	At major airports, light fixed wing aircraft should be allowed to use STOL runways to avoid using the same runways as heavy fixed wing aircraft	4.44

<b>#487</b>	Airspace users desire an ATC service on the basis of CDM principles while in managed airspace	4.28
<b>#488</b>	Users desire flexible use of terminal airspace, with mandatory SIDs and STARs eliminated as much as possible	4.262
<b>#489</b>	Aircraft which cannot fly above the weather, or have poor navigation performance or de-icing, need special Met. information to compensate for this handicap	4.21
<b>#490</b>	ATM should not play a role in the scheduling of airport capacity, but should be aware of the available airport capacity at all times in order to be able to maximise the use of that capacity	4.60
<b>#491</b>	The ATC system should not be the limiting factor for the expansion of airport capacity	4.202
<b>#492</b>	Decisions on mandating retrofit of airborne equipment capabilities must be based on cost/benefit analysis	4.81
<b>#493</b>	User consultation is essential in order to achieve suitable retrofit schedules	4.258
<b>#494</b>	Lead times and pre-notification for mandating new airborne capabilities need to ensure the availability of the equipment incl. certification, and sufficient time for installation and training	4.121
<b>#495</b>	Need for advanced Information Management in AIS	4.145
<b>#496</b>	AIS information should be enhanced with corresponding traffic (density) / congestion forecasts and flow restrictions	4.37
<b>#497</b>	Aircraft operators want highly up-to-date AIS information regarding the current status the Air Navigation System	4.17
<b>#498</b>	Mechanisms should be put in place to ensure appropriate authority, responsibility and data control of aviation weather information, so that the various parties use a coherent set of Met. data	4.128
<b>#499</b>	ATM improvements should only be introduced after careful risk mitigation	4.46
<b>#500</b>	Airport operators desire close coordination with the CFMU in order to have better knowledge of expected traffic volumes and to improve the predictability of departure and arrival times	4.24
<b>#501</b>	Need for timely availability of data exchange standards	4.166
<b>#502</b>	Need for the application of common Cost/Benefit Analysis principles throughout the ECAC area	4.164
<b>#503</b>	A-SMGCS is needed at major airports	4.11
<b>#504</b>	From an information point of view, A-SMGCS should be fully integrated with the rest of the ATM system	4.94
<b>#505</b>	Users regard the Global Navigation Satellite System (GNSS) as the future navigation infrastructure	4.266
<b>#506</b>	Users want flexibility with regard to navigational equipment used	4.269
<b>#507</b>	ATM should support, and take advantage of aircraft with cockpit traffic information display and ASAS capability	4.63
<b>#508</b>	Pilots want access to the right traffic information (on-board) in order to take emergency actions and avoid other traffic	4.179
<b>#509</b>	In future ATM, on a tactical level, real time coordination is needed to ensure that all TSA airspace is made available for civil use at the earliest possible moment	4.113
<b>#510</b>	ATM should be able to deal with the high military traffic volumes and priority rules which can be associated with times of crisis	4.56
<b>#511</b>	The ATM network should be able to accommodate military missions and special flights; in particular aerial refueling, formation flights and long duration flights	4.204

<b>#512</b>	A flight must be seen by the ATM network as an integral coherent process, starting with strategic flight planning and ending after the completion of post-flight activities	4.4
<b>#513</b>	The future ATM system has to be based on a benefit-driven approach supported by clear business cases and must incorporate measurable performance targets	4.219
<b>#514</b>	Safety is paramount and the need to improve safety levels in the face of increasing demand must be emphasised	4.186
<b>#515</b>	Environmental gains, together with any associated environmental related penalties, must be clearly spelt out in the Strategy	4.88
<b>#516</b>	The right of access to airspace for all users must be a central objective	4.233
<b>#517</b>	The need to increase airport capacity and airport and en-route capacity gains has to be balanced and remain in step if the full benefits of future investments are to be realised	4.227
<b>#518</b>	Collaborative decision making based on improved planning procedures and information management is an important key to a more efficient, flexible and effective ATM system	4.73
<b>#519</b>	Collaborative decision making based on improved planning procedures and information management needs to be applied at both the strategic and tactical levels	4.74
<b>#520</b>	The human will remain an essential part of the ATM system for the foreseeable future and this has to be taken into account in the early design stages of the enabling systems and infrastructure	4.221
<b>#521</b>	Increasing the productivity of the air traffic controllers through the extensive use of computer support tools is a critical factor in finding the extra capacity needed	4.115
<b>#522</b>	Airspace management measures need to be more ambitious and applied by all States. A 'Schengen' approach is needed	4.26
<b>#523</b>	ATFM has to incorporate flexible capacity management and include consideration of gate-to-gate operations	4.45
<b>#524</b>	Communications, Navigation and Surveillance systems have to be developed within a single coherent framework to more aggressive timescales	4.75
<b>#525</b>	The role of essential services such as meteorology and AIS has to be recognised and statements concerning national defence needs and military requirements strengthened and expanded	4.234
<b>#526</b>	Implementation management mechanisms have to be clearly defined and rigorously enforced	4.109
<b>#527</b>	R & D activities needed to support the Strategy have to be identified and prioritised	4.183



## URD Chapter 4

# ALPHABETICAL LIST OF STAKEHOLDER NEEDS - DESCRIPTION

4.1

**A defined CNS/ATM transition period should be established. Detailed technical input to identify redundant equipment will be necessary to ensure national cost bases are reduced accordingly**

*Stakeholder Need#295*

### Background:

This requirement addresses specific charging issues raised by the implementation of CNS/ATM. Although this is a new environment, all basic IATA / ICAO principles such as non-discrimination, cost relationship, financial transparency, etc. should still be adhered to.

### Description:

During the transition period the costs, both fixed and variable, should be included in the cost base of the service provider. The ICAO Regional Plan should be adjusted to reflect the length of the transition period and which ground facilities should be withdrawn and when. The transition period should be as short as possible.

IATA recognises that the length of the transition period to move from ground based to satellite based navigation systems will vary by region. It is vital that the political, institutional, technical and financial sectors of the aviation industry maintain a high degree of coordination and cooperation during the transition period.

Detailed technical input to identify redundant equipment will be necessary for each region to ensure national cost bases are reduced accordingly. A defined transition period should be established, taking into account regional circumstances.

### Note:

The IATA User Charges Panel (UCP) ICAO / FANS Working Group is still considering a number of issues which may have to be included in a more detailed supplementary paper to this policy statement.

### Applies to Service:

Air Navigation Systems Planning & Development

*Relationship#10*

*Service#2*

### Has Source:

IATA User Charges Panel (UCP) ICAO / FANS WG, User Charges Policy for CNS/ATM (4th Draft (22 July 1994))

*Relationship#18*

*Document#2*

### Is about Theme:

Evolvability

*Relationship#16*

*Theme#19*

### Is Required by:

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

### To be Addressed by:

Ensure Cost Effective System Inter-Operability and Evolution

*Relationship#29*

*Strategic Objective#23*

4.2      **A dialogue should be held with ALL airspace user categories before introducing any new controlled airspace**      *Stakeholder Need#479*

**Background:**

Basically the access to and use of the airspace must be open to all legal users with a minimum of regulation. Therefore:

**Description:**

Controlled and regulated airspace (ICAO category D up to A) should only be established after careful consideration of the requirements of and limitations imposed on each user category, and the feasibility of other solutions, in conjunction with all parties concerned.

**Applies to Service:**

ASM (Airspace Management)

*Relationship#10*

*Service#15*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:**

GA (General Aviation)

*Relationship#30*

*Stakeholder#21*

**To be Addressed by:**

Fair Access to Airspace

*Relationship#29*

*Strategic Objective#11*

4.3      **A dynamic system for allocation of airspace for civil or military use is required to improve overall airspace usage**      *Stakeholder Need#395*

**Background:**

Military operators will, in principle, comply with EATMS airborne capability requirements and procedures. However, military operators will require, with defined and agreed exemption and waivers, access to EATMS airspace.

**Description:**

A dynamic system for allocation of airspace for civil or military use is required to improve overall airspace usage.

**Applies to Service:**

ASM (Airspace Management)

*Relationship#10*

*Service#15*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Flexibility

*Relationship#16*

*Theme#20*

**Is Required by:**

The OAT (Operational Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#14*

**To be Addressed by:**

Fair Access to Airspace

*Relationship#29*

*Strategic Objective#11*

National Security and Defence Requirements: General Objective      *Strategic Objective#19*

4.4 **A flight must be seen by the ATM network as an integral coherent process, starting with strategic flight planning and ending after the completion of post-flight activities** *Stakeholder Need#512*

**Background:**

Some users look at efficiency not only from block to block (trajectory efficiency) but apply a notion of 'flight operations efficiency', which includes the pre-flight and post-flight activities.

Lack of coherence between pre-flight, in-flight and post-flight services (e.g. having to deal with different systems, service providers, data representations, communication requirements, depending on the service used) causes unnecessary overhead which has a negative impact on the overall efficiency of the flight operations department of an aircraft operator.

**Description:**

A flight must be seen by EATMS as an integral coherent process, starting with strategic flight planning and ending after the completion of post-flight activities (e.g., include cost recovery, incident and performance analysis).

**Applies to Service:**

ATS (Air Traffic Services)

*Relationship#10*

*Service#3*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Integration

*Relationship#16*

*Theme#49*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

ATM Information Pool Management

*Relationship#29*

*Enabling Objective#4*

Ensure Cost Effective System Inter-Operability and Evolution

*Strategic Objective#23*

Flight Efficiency

*Strategic Objective#17*

4.5 **A mechanism for the resolution of conflicts of interest, when there are clearly identified conflicting requirements, must be established** *Stakeholder Need#26*

**Description:**

A mechanism for the resolution of conflicts of interest, when there are clearly identified conflicting requirements, must be established.

**Applies to Service:**

Air Navigation Systems Planning & Development

*Relationship#10*

*Service#2*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:** Relationship#30  
Airspace Users Stakeholder#3

**To be Addressed by:** Relationship#29  
Individual vs Collective Benefit Trade-off Topic#3

4.6 **A number of terminal area weather parameters are to be forecasted and nowcasted** Stakeholder Need#337

**Description:**  
The terminal needs include:

- wake vortex
- fog
- low level windshear
- runway surface condition e.g. rain, snow, ice
- thunderstorm / Cb
- heavy rain
- snow (falling and/or lying)
- thaw

**Applies to Service:** Relationship#10  
MET (Weather Services) Service#6

**Has Source:** Relationship#18  
ATM User Requirements Workshop (Brussels, Sep. 1994) Meeting#1

**Is about Theme:** Relationship#16  
Meteorological Conditions Theme#12

**Is Required by:** Relationship#30  
The GAT (General Air Traffic) Airspace User Community Stakeholder#13

**To be Addressed by:** Relationship#29  
Responsiveness to Information Needs Enabling Objective#1

4.7 **A performance review system needs to be established on supra-national level in order to provide feedback about the overall performance of ATM operations** Stakeholder Need#390

**Description:**  
A quality control system needs to be established on supra-national level in order to monitor and report about the overall performance of EATMS operations.

**Note:**  
This includes, in particular, control of the efficiency of EATMS operations, and its resulting flight safety and flight efficiency.

**Applies to Service:** Relationship#10  
Quality of Service (Performance) Monitoring Service#21

**Has Source:** Relationship#18  
ATM User Requirements Workshop (Brussels, Sep. 1994) Meeting#1

**Is about Theme:** Relationship#16  
Performance Theme#24

Quality Assurance

Theme#42

**Is Required by:**

Relationship#30

Commercial Air Transport (Airlines)

Stakeholder#20

**To be Addressed by:**

Relationship#29

Performance-Driven Approach

Strategic Objective#30

4.8 **A quality control mechanism should exist to check forecasts against actual weather**

Stakeholder Need#286

**Description:**

A quality control mechanism should exist to ensure the verification of Met. products. Emphasis should be placed on parameters relevant to flight operations.

**Note:**

The term 'verification' refers to the checking of forecasts against actual weather.

**Applies to Service:**

Relationship#10

Quality of Service (Performance) Monitoring

Service#21

**Has Source:**

Relationship#18

ATM User Requirements Workshop (Brussels, Sep. 1994)

Meeting#1

**Is about Theme:**

Relationship#16

Quality Assurance

Theme#42

**Is Required by:**

Relationship#30

Information Service Providers

Stakeholder#17

**To be Addressed by:**

Relationship#29

ATM Information Pool Management

Enabling Objective#4

4.9 **A review and redesign of the low level airspace structure of the entire ECAC area should be conducted, to eliminate non-essential controlled airspace**

Stakeholder Need#456

**Background:**

Many of today's aerodrome control zones and terminal areas in Europe have been designed decades ago, in the age of airliners with poor climb performance, low accuracy navigation and surveillance systems, ATC applying large separation standards and different approach and departure procedures, and before the existence of powerful airspace usage analysis tools.

General Aviation users feel that in many cases today's low level airspace structure is not in line with the real requirement for controlled airspace around airports.

**Description:**

As part of EATMS implementation, a review and redesign of the low level airspace structure of the entire ECAC area should be conducted, to eliminate all unnecessary low level controlled airspace, both horizontally and vertically.

**Applies to Service:**

Relationship#10

ASM (Airspace Management)

Service#15

<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Accessibility (in space)	<i>Theme#17</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
GA (General Aviation)	<i>Stakeholder#21</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Fair Access to Airspace	<i>Strategic Objective#11</i>

4.10 **A route and airspace structure must be established which is not affected by national borders but is derived solely from the airspace users' operational requirements** *Stakeholder Need#320*

**Background:**

The objective of ASM is to maximise, within a given airspace structure, the utilisation of available airspace by dynamic time-sharing and, at times, segregation of airspace among various categories of users based on short-term needs.

**Description:**

As a prerequisite for the efficient use of airspace, a route and airspace structure must be established which is not affected by national borders but is derived solely from the airspace users' operational requirements.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ASM (Airspace Management)	<i>Service#15</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Efficiency	<i>Theme#50</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
The GAT (General Air Traffic) Airspace User Community	<i>Stakeholder#13</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
One Airspace Principle	<i>Strategic Principle#1</i>

4.11 **A-SMGCS is needed at major airports** *Stakeholder Need#503*

**Background:**

The users believe that the implementation of A-SMGCS at major airports will significantly improve the fluidity of traffic between airspace and the ground.

**Description:**

The A-SMGCS should:

- provide adequate situational awareness of aircraft, vehicles and personnel on the airport;
- ensure safe operation of aircraft/vehicle by means of routing guidance and control to prevent runway incursion;
- ensure efficient use of the airport movement area;
- maintain capacity in all weather conditions that are operationally relevant, i.e. affecting regularity.

**Applies to Service:**

Navigation Services

Surveillance Services

*Relationship#10*

*Service#12*

*Service#13*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Capacity

Efficiency

Poor Weather Conditions

Safety

Situational Awareness

*Relationship#16*

*Theme#28*

*Theme#50*

*Theme#13*

*Theme#38*

*Theme#6*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Best Use of Available Airport Capacity

*Relationship#29*

*Strategic Objective#10*

4.12

**Accurate and reliable airborne navigation systems providing RNAV capability are urgently required**

*Stakeholder Need#455*

**Description:**

Accurate and reliable airborne navigation systems providing area navigational capability are urgently required in order to improve navigational performance, thus providing for maximum utilisation of airspace in areas of high traffic density, thereby enhancing the efficiency of Air Traffic Services.

**Applies to Service:**

Navigation Services

*Relationship#10*

*Service#12*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Accuracy

Reliability

*Relationship#16*

*Theme#25*

*Theme#36*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:** Relationship#29  
Navigation and Clock Synchronisation Capabilities Enabling Objective#8

4.13 **Adequate database servers should be available for storage and dissemination of met. data, aerodrome products and atmospheric data** Stakeholder Need#282

**Description:**  
Facilities for storage of met. data, aerodrome products and atmospheric data are required.

**Applies to Service:** Relationship#10  
Coordination with Weather Service Providers Service#26

**Has Source:** Relationship#18  
ATM User Requirements Workshop (Brussels, Sep. 1994) Meeting#1

**Is about Theme:** Relationship#16  
Integration Theme#49

**Is Required by:** Relationship#30  
Information Service Providers Stakeholder#17

**To be Addressed by:** Relationship#29  
ATM Information Pool Management Enabling Objective#4

4.14 **Air taxi operators have the same requirements as corporate business aviation, but cost is a more critical factor** Stakeholder Need#346

**Description:**  
Air taxi operators have the same requirements as corporate business aviation, but cost is a more critical factor.

**Applies to Service:** Relationship#10  
ATS (Air Traffic Services) Service#3

**Has Source:** Relationship#18  
ATM User Requirements Workshop (Brussels, Sep. 1994) Meeting#1

**Is about Theme:** Relationship#16  
Principles of Treatment Theme#2

**Is Required by:** Relationship#30  
GA (General Aviation) Stakeholder#21

**To be Addressed by:** Relationship#29  
Pricing Management Strategic Objective#8



4.15 **Airborne collision avoidance systems should remain an independent safety net** *Stakeholder Need#313*

**Background:**

At this stage of EATMS development, a requirement for mandating airborne collision avoidance systems cannot be made. However, since it is very likely that such systems will be operated within the EATMS coverage:

**Description:**

EATMS should take the capabilities of airborne collision avoidance systems duly into account.

However, some users insist that TCAS / ACAS is not going to be incorporated as an integral part of ATC - it should remain an independent safety net.

**Applies to Service:**

ATC (Air Traffic Control)

*Relationship#10*

*Service#17*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Safety

*Relationship#16*

*Theme#38*

**Is Required by:**

Airspace Users

*Relationship#30*

*Stakeholder#3*

**To be Addressed by:**

Participating in Global Safety Objectives

*Relationship#29*

*Strategic Objective#3*

4.16 **Aircraft operators desire the planning and execution of departures to be improved with the help of appropriate datalink applications** *Stakeholder Need#442*

**Background:**

The use of datalink to provide the users with pre-departure clearances is already a reality today in some airports.

This practice has the total support of the users who expect that the application of such a facility can be extended and made available at the majority of the airports, taking into consideration the cost-benefit aspects. It is expected that in the near future some additional datalink applications will be available. Within the EATMS timeframe, it is expected to implement advanced datalink applications, in order to improve the methods to provide information to the users, to exchange information which will be considered as essential for the conduct of flights, or to increase the accuracy of data needed to improve the quality of the services provided.

**Description:**

The aircraft operators expressed the following requirements on data to be provided to departing traffic by datalink or by other efficient means:

- Provision of Departure Out Block Slot(DOS) one hour before the departure time with more than 95% of accuracy;
- Departure clearance incorporating 15 minutes of flexibility around the DOS (via DL);
- Taxi clearance (via DL);
- Winds/temperature aloft, in graphical and alphanumeric form (via DL);
- Runway conditions on assigned runway (via DL);
- Actual winds for assigned runway (via DL).

**Applies to Service:**

Coordination with Aerodrome Operators

*Relationship#10*

*Service#25*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Interoperability

*Relationship#16*

*Theme#22*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Information Dissemination Capabilities

*Relationship#29*

*Enabling Objective#3*

Responsiveness to Information Needs

*Enabling Objective#1*

**4.17 Aircraft operators want highly up-to-date AIS information regarding the current status the Air Navigation System** *Stakeholder Need#497*

**Description:**

Aircraft operators want highly up-to-date AIS information regarding the current status the Air Navigation System (unserviceability, airspace reservations (availability of conditional airspace), etc.).

**Applies to Service:**

AIS (Aeronautical Information Services)

*Relationship#10*

*Service#5*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Integration

*Relationship#16*

*Theme#49*

**Is Required by:**

Airspace Users

*Relationship#30*

*Stakeholder#3*

**To be Addressed by:**

Information Dissemination Capabilities

*Relationship#29*

*Enabling Objective#3*

4.18 **Aircraft operators want the flexibility to formulate and modify flight plans as late as possible** *Stakeholder Need#472*

**Description:**

Aircraft operators want the flexibility to formulate and modify flight plans as close to the EOBT as possible.

**Applies to Service:**

Flight Plan Processing Services

*Relationship#10*

*Service#7*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Flexibility

*Relationship#16*

*Theme#20*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Flexibility

*Relationship#29*

Information Acquisition Capabilities

*Strategic Objective#16*

*Enabling Objective#2*

4.19 **Aircraft operators want, throughout the ECAC area, an exemption of the obligation to file a flight plan, for all VFR flights (including international VFR flights) which do not need an ATC clearance** *Stakeholder Need#470*

**Description:**

Aircraft operators want, throughout the ECAC area, an exemption of the obligation to file a flight plan, for all VFR flights (including international VFR flights) which do not need an ATC clearance.

**Note:**

It should however still be possible to file a flight plan for SAR purposes.

**Applies to Service:**

Flight Plan Processing Services

*Relationship#10*

*Service#7*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:**

GA (General Aviation)

*Relationship#30*

*Stakeholder#21*

**To be Addressed by:**

Information Acquisition Capabilities

*Relationship#29*

*Enabling Objective#2*

4.20 **Aircraft weather sensor parameters require certain pre-processing before being downlinked to Met. service providers** *Stakeholder Need#334*

**Background:**

The quality of downlinked data is affected by roll angle, side slip and yaw angle.

**Description:**

Data may require filtering or processing to eliminate inaccurate data.

The quantity of data provided should recognise the data density needs of the met. models and the cost of data transmission and processing.

The MET providers stated that moisture content information is required in aircraft reports.

Met. data should be 'smoothed' within the aircraft systems (over time periods which depend on the phase of the flight).

**Note:**

These specifications clearly explain what are the needs from the point of view of the meteorologist. It is important to note that various parameters like various angles are only necessary to qualify several met. data. There is no need to transmit them. They can be used onboard in order to attach a quality flag to the met. data.

**Applies to Service:**

Coordination with Weather Service Providers

*Relationship#10*

*Service#26*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Integration

*Relationship#16*

*Theme#49*

**Is Required by:**

Information Service Providers

*Relationship#30*

*Stakeholder#17*

**To be Addressed by:**

Information Acquisition Capabilities

*Relationship#29*

Responsiveness to Information Needs

*Enabling Objective#2*

*Enabling Objective#1*

4.21 **Aircraft which cannot fly above the weather, or have poor navigation performance or de-icing, need special Met. information to compensate for this handicap** *Stakeholder Need#489*

**Background:**

Aircraft which cannot fly above the weather, or have poor navigation performance or de-icing, need special Met. information to compensate for this handicap.

**Description:**

EATMS must accept and disseminate pilot reports on

- icing
- convective activity
- turbulence
- precipitation
- ceiling and top of clouds

EATMS must disseminate accurate forecasts on

- icing
- convective activity

**Note:**

This information should be available during flight planning as well as during actual flight.

**Applies to Service:**

MET (Weather Services)

*Relationship#10*

*Service#6*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Meteorological Conditions

*Relationship#16*

*Theme#12*

**Is Required by:**

GA (General Aviation)

*Relationship#30*

*Stakeholder#21*

**To be Addressed by:**

Information Dissemination Capabilities

*Relationship#29*

Responsiveness to Information Needs

*Enabling Objective#3*

*Enabling Objective#1*

4.22

**Airlines confirmed that they wish to see standard separation minima applied throughout the whole European ECAC area**

*Stakeholder Need#451*

**Description:**

Airlines confirmed that they wish to see standard separation minima applied throughout the whole European ECAC area.

**Applies to Service:**

ATC (Air Traffic Control)

*Relationship#10*

*Service#17*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Standardisation

*Relationship#16*

*Theme#47*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

General Uniformity Objective

*Relationship#29*

*Strategic Objective#21*

#### 4.23 Airlines need a certain degree of departure/arrival flexibility in order to maintain the efficiency of hub-and-spoke networks

Stakeholder Need#325

##### Background:

Irregularities have a particularly detrimental effect on the operation of hub-and-spoke networks. A reliable connectivity between arriving and departing flights as offered in the airlines' schedules is essential for the hub-operation. Cooperation of airlines furthermore may create interdependencies between schedules of the cooperating partner airlines at hub airports. Suitable connectivity requires concentration of arrivals and departures contributing to the creation of traffic peaks.

##### Description:

In order to maintain the efficiency of hub-and-spoke networks, the airspace users involved in their operations require on one hand a particularly high degree of regularity and punctuality at hub-airports which needs to be supported by EATMS.

On the other hand, EATMS is required to be flexible enough to cater for short-term changes of departure times as determined by the aircraft operator in order to allow the connectivity of flights in cases of delayed arrivals.

##### Applies to Service:

ATFM (Air Traffic Flow Management)

Relationship#10

Service#16

##### Has Source:

ATM User Requirements Workshop (Brussels, Sep. 1994)

Relationship#18

Meeting#1

##### Is about Theme:

Efficiency

Relationship#16

Theme#50

Flexibility

Theme#20

##### Is Required by:

Commercial Air Transport (Airlines)

Relationship#30

Stakeholder#20

##### To be Addressed by:

Flexibility

Relationship#29

Strategic Objective#16

Flight Efficiency

Strategic Objective#17

Predictability

Strategic Objective#15

4.24

**Airport operators desire close coordination with the CFMU in order to have better knowledge of expected traffic volumes and to improve the predictability of departure and arrival times**

*Stakeholder Need#500*

**Background:**

Airport operations planning deals with factors such as availability of infrastructure, availability of systems and equipment, security and flight safety, availability of adequate airport resources etc., in order to deliver a basic airport capacity which effectively meets to the forecasted demand.

Today the airport operators feel that a lack of coordination between airports and ATM is one of the main factor of disturbance either in airports operations planning or in ATM planning. This lack of close cooperation has a negative impact on the provision of a high quality service of both entities, with a significant impact on the aircraft operators.

The airport operators feel that in order to improve the quality of service of the future system, mechanisms of coordination must be foreseen, in such a way that airports and ATM entities (CFMU) maintain a real time information exchange which will permit a coordinated update of short/medium term of both planning horizons.

**Description:**

Airport operators desire close coordination between airports and the CFMU in order to have better knowledge of expected traffic volumes and to improve the predictability of departure and arrival times.

**Applies to Service:**

Coordination with Aerodrome Operators

*Relationship#10*

*Service#25*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Integration

*Relationship#16*

*Theme#49*

**Is Required by:**

The Airport Community

*Relationship#30*

*Stakeholder#4*

**To be Addressed by:**

Ensure Cost Effective System Inter-Operability and Evolution  
Information Dissemination Capabilities

*Relationship#29*

*Strategic Objective#23*

*Enabling Objective#3*

4.25 **Airport operators require the ATM system to provide them with updates on a number of flight parameters via data link, whenever there are relevant changes** *Stakeholder Need#443*

**Description:**

The airport operators expressed the following requirements on data to be provided to airports by datalink or by other efficient means:

- Estimated Time of Arrival (ETA) as soon as aircraft takes off from the departure airport with regular updates until 10 minutes before landing;
- Accurate Expected On Block Time (EOT) 10 minutes before landing (via DL);
- Update of the EOT if it is expected that the ground movement of the aircraft exceeds the EOT by 1 minute (via DL);
- Number of passengers (via DL);
- Cargo (via DL);
- Fuel burned (via DL);
- Aircraft service requirements on ground (via DL).

**Applies to Service:**

Coordination with Aerodrome Operators

*Relationship#10  
Service#25*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18  
Meeting#1*

**Is about Theme:**

Integration

*Relationship#16  
Theme#49*

**Is Required by:**

The Airport Community

*Relationship#30  
Stakeholder#4*

**To be Addressed by:**

Information Dissemination Capabilities  
Responsiveness to Information Needs

*Relationship#29  
Enabling Objective#3  
Enabling Objective#1*

4.26 **Airspace management measures need to be more ambitious and applied by all States. A 'Schengen' approach is needed** *Stakeholder Need#522*

**Applies to Service:**

ASM (Airspace Management)

*Relationship#10  
Service#15*

**Has Source:**

ATM 2000+ Workshop (Luxemburg, Feb. 1998)

*Relationship#18  
Meeting#2*

**Is about Theme:**

Timeliness

*Relationship#16  
Theme#31*

**Is Required by:**

The Aviation Industry

*Relationship#30  
Stakeholder#1*

**To be Addressed by:**

One Airspace Principle

*Relationship#29  
Strategic Principle#1*



4.27      **Airspace users are willing to communicate position and intentions to others in the ATM system**      *Stakeholder Need#288*

**Description:**

The airspace user, in general, wants to communicate to EATMS his position, estimates (e.g. ETD, ETA, crossing of a fix) and intention.

**Applies to Service:**

Surveillance Services

*Relationship#10*

*Service#13*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Integration

*Relationship#16*

*Theme#49*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Information Acquisition Capabilities

*Relationship#29*

*Enabling Objective#2*

4.28      **Airspace users desire an ATC service on the basis of CDM principles while in managed airspace**      *Stakeholder Need#487*

**Description:**

There is a wish for a co-operative air traffic management contract between the airspace user and the EATMS. Operational details are described below.

**Note:**

The user is requesting his optimum 4D profile as airspace. This 4D trajectory should be generated by the pilot using the aircraft FMS immediately prior to flight commencing. The EATMS goal is to grant the optimum flight profile as requested by the user. Usually, the requirement is for direct routing between departure and destination aerodromes. If ATC cannot grant the requested departure / enroute / arrival trajectory, the ATM system should offer to the user a set of second choice of profiles. The user decides which option to take. The result is the contract for the whole flight. So only one clearance is necessary and it is conflict free for as much of the flight as possible.

Re-negotiation has to be possible whenever necessary during the whole flight. The user wants real time flexibility. It is up to the operator to manage his speed or other flight parameters to fulfil the 4D contract he has committed him/herself to.

**Applies to Service:**

ATC (Air Traffic Control)

*Relationship#10*

*Service#17*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Integration

*Relationship#16*

*Theme#49*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

*Relationship#29*

Flight Efficiency

Strategic Objective#17

4.29 **Airspace users have a basic requirement for up-to-date AIS/MET information and air traffic density forecast products prior to any flight operations** *Stakeholder Need#61*

**Description:**

Airspace users have a basic requirement for up-to-date MET and AIS information prior to any flight operations.

This also applies to air traffic density forecast products when they become available for effective pre-flight planning.

**Applies to Service:**

AIS, MET & Flight Plan Processing Services

*Relationship#10*

*Service#4*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Integration

*Relationship#16*

*Theme#49*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Information Dissemination Capabilities

*Relationship#29*

*Enabling Objective#3*

4.30 **Airspace users have a need for aviation weather forecasts four days ahead** *Stakeholder Need#245*

**Description:**

It is required to have, during this phase:

- Forecasts up to 96 hours ahead, for upper winds/temps, aerodrome wind/temp for relevant aerodromes, significant weather phenomena including volcanic ash.

- Forecasts up to 96 hours ahead for weather conditions which are significant for certain special nature VFR flights (e.g. aerial work, sporting and recreational aviation).

**Applies to Service:**

MET (Weather Services)

*Relationship#10*

*Service#6*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Meteorological Conditions

*Relationship#16*

*Theme#12*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Responsiveness to Information Needs

*Relationship#29*

*Enabling Objective#1*

4.31 **Airspace users re-affirm that they want a flexible use of all airspace** *Stakeholder Need#249*

**Description:**

All airspace users want a flexible use of all airspace, including Temporary Reserved Areas (TRAs to be active only when actually required). This translates into different requirements for the various user groups (commercial vs. glider). All IFR users want availability of entry to airspace for controlled flights.

**Applies to Service:**

ASM (Airspace Management)

*Relationship#10*

*Service#15*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Flexibility

*Relationship#16*

*Theme#20*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Fair Access to Airspace

*Relationship#29*

*Strategic Objective#11*

4.32 **Airspace users request an auditing facility for user charges** *Stakeholder Need#433*

**Description:**

An auditing facility should be available. The function should be one of a coordination role in order to regularise billing.

**Applies to Service:**

Cost Recovery

*Relationship#10*

*Service#23*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Quality Assurance

*Relationship#16*

*Theme#42*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Pricing Management

*Relationship#29*

*Strategic Objective#8*

4.33 **Airspace users request performance review mechanisms to ensure cost-effective provision of air traffic services** *Stakeholder Need#414*

**Description:**

Internal cost control systems and mechanisms to avoid unnecessary duplication should be established and their effectiveness should be equivalent to the best in current commercial practice.

**Note:**

These should be visible to the outside world, i.e. capable of examination by government and airspace users.

**Applies to Service:**

Quality of Service (Performance) Monitoring

*Relationship#10*

*Service#21*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Quality Assurance

*Relationship#16*

*Theme#42*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

General Economic Objective: Cost Reduction

*Relationship#29*

*Strategic Objective#6*

Performance-Driven Approach

*Strategic Objective#30*

4.34

**Airspace users require all relevant enroute weather parameters to be forecasted and nowcasted**

*Stakeholder Need#338*

**Description:**

Enroute needs include:

- wind, headwind, crosswind, equivalent headwind
- temperature (particularly for climb phase)
- icing - cloud, precipitation
- anti-icing (particularly for descent phase) - cloud, precipitation
- convective turbulence
- clear air turbulence
- mountain waves
- volcanic ash

**Applies to Service:**

MET (Weather Services)

*Relationship#10*

*Service#6*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Meteorological Conditions

*Relationship#16*

*Theme#12*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Responsiveness to Information Needs

*Relationship#29*

*Enabling Objective#1*

4.35      **Airspace users require equitable treatment in the allocation of airspace and trajectories**      *Stakeholder Need#399*

**Description:**

Users require equitable treatment in the allocation of airspace and trajectories. This is generally seen as the 'first come - first served' principle.

**Applies to Service:**

ATM (Air Traffic Management)

*Relationship#10*

*Service#14*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:**

Airspace Users

*Relationship#30*

*Stakeholder#3*

**To be Addressed by:**

Individual vs Collective Benefit

*Relationship#29*

*Trade-off Topic#3*

4.36      **Airspace users would like to see an increased number of Automatic Weather Observation Systems at uncontrolled airports**      *Stakeholder Need#459*

**Description:**

To improve nowcasting at uncontrolled airports, the airspace users would like to see an increased number of Automatic Weather Observation Systems at uncontrolled airports.

As an additional benefit, the observations made by these systems can serve to augment enroute forecasts.

**Applies to Service:**

Coordination with Weather Service Providers

*Relationship#10*

*Service#26*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Meteorological Conditions

*Relationship#16*

*Theme#12*

**Is Required by:**

GA (General Aviation)

*Relationship#30*

*Stakeholder#21*

**To be Addressed by:**

Weather Observation Capabilities

*Relationship#29*

*Enabling Objective#10*

4.37      **AIS information should be enhanced with corresponding traffic (density) / congestion forecasts and flow restrictions**      *Stakeholder Need#496*

**Description:**

For pre-tactical flight-planning purposes, aircraft operators want AIS/ATFM networks to be linked to enhance AIS information with corresponding traffic (density) / congestion forecasts and flow restrictions.

<b>Applies to Service:</b>	<i>Relationship#10</i>
AIS (Aeronautical Information Services)	<i>Service#5</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Integration	<i>Theme#49</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
The GAT (General Air Traffic) Airspace User Community	<i>Stakeholder#13</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
ATM Information Pool Management	<i>Enabling Objective#4</i>

#### 4.38 **All developments in the aviation meteorology field must be cost effective** *Stakeholder Need#280*

##### **Description:**

The cost-effectiveness of Doppler weather radar at airports should be studied. This was supported by the IATA view that the installation of Doppler weather radars at airports should depend on severity and frequency of occurrence of weather effects and on traffic density.

There is a suggestion (from IFALPA) to have ground based weather radar data available on the flight deck. IFALPA also proposed having a dedicated datalink frequency for met. data (other Sub-group members thought the latter to be a communications item).

Observation data (METARs), including analysis of multiple sensor data, must be made available to end users with a minimum of delay.

The IATA view is that all developments in the met. field must be cost effective.

The Met. requirement for ground-based processing of remotely sensed data (satellite, radar, wind-profilers, lightning detection) needs further development.

<b>Applies to Service:</b>	<i>Relationship#10</i>
Coordination with Weather Service Providers	<i>Service#26</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Efficiency	<i>Theme#50</i>
Meteorological Conditions	<i>Theme#12</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
Commercial Air Transport (Airlines)	<i>Stakeholder#20</i>
Information Service Providers	<i>Stakeholder#17</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Information Acquisition Capabilities	<i>Enabling Objective#2</i>
Information Dissemination Capabilities	<i>Enabling Objective#3</i>
Weather Observation Capabilities	<i>Enabling Objective#10</i>

4.39 **All weather operations at airports should be possible, without significant loss of airport capacity during adverse conditions** *Stakeholder Need#331*

**Background:**

Adverse weather conditions can severely reduce airport capacity. This has a significant economic impact on both aircraft operators and airport operators.

Efforts to overcome this problem, traditionally focused on maintaining runway capacity. However this is not always the bottleneck. At large and busy airports, it is often difficult to maintain a sufficiently high ground movement flow rate during IMC.

**Description:**

Under EATMS, the users expect all weather operations to be possible, without significant loss of airport capacity during adverse conditions.

**Note:**

Users expect that 100% 'all weather operations' cannot be achieved at reasonable cost. They understand that airports may still be closed or operating at reduced capacity during highly adverse weather conditions.

However the requirement can be translated into a 'number of days per year' that VMC airport capacity should be available. This number should be significantly increased at each airport.

**Applies to Service:**

ATC (Air Traffic Control)

*Relationship#10*

*Service#17*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Capacity

*Relationship#16*

*Theme#28*

Meteorological Conditions

*Theme#12*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Best Use of Available Airport Capacity

*Relationship#29*

*Strategic Objective#10*

4.40 **Any requirement of increasing the number of VHF com channels (i.e. 8.33 kHz) should be confined to the users who need it** *Stakeholder Need#478*

**Background:**

Low end General Aviation could very well be satisfied with 760 com channels.

**Description:**

Any requirement of increasing the number of VHF com channels should be confined to the users who need it (e.g. high flying aircraft above a certain FL).

**Applies to Service:**

COM (Communication Services)

*Relationship#10*

*Service#11*

<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Interoperability	<i>Theme#22</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
GA (General Aviation)	<i>Stakeholder#21</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Communication Capabilities	<i>Enabling Objective#7</i>
Individual vs Collective Benefit	<i>Trade-off Topic#3</i>

4.41 **Appropriately equipped and licenced airspace users want, throughout the European ECAC area, the regulatory possibility to land at and to take off from uncontrolled aerodromes in IMC conditions** *Stakeholder Need#271*

**Background:**

Some States of the European ECAC area do not permit IFR departures or arrivals from/to uncontrolled aerodromes.

**Description:**

The appropriately equipped and licenced airspace users want, throughout the European ECAC area, the possibility to land at and to take off from uncontrolled aerodromes in IMC conditions.

**Note:**

This is in fact current practice in some EU countries and in the continental US.

It is expected that in the future, the absence of ground-based radio navigation aids will not be an obstacle to the existence of instrument approach procedures. At least non-precision GNSS based approach procedures should be available for all those aerodromes which are equipped with basic runway marking and lighting.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ATC (Air Traffic Control)	<i>Service#17</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Principles of Treatment	<i>Theme#2</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
GA (General Aviation)	<i>Stakeholder#21</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Fair Access to Airports	<i>Strategic Objective#12</i>
Fair Access to Required ATM Services	<i>Strategic Objective#13</i>
Individual vs Collective Benefit	<i>Trade-off Topic#3</i>



4.42 **As much as possible, the pilot in command and the controller should have independent situational awareness (for flight safety reasons)** *Stakeholder Need#314*

**Description:**

As much as possible, the pilot in command and the controller should have independent situational awareness (for flight safety reasons). In other words, scenarios should be avoided where ground and air exchange incorrect situation data and build upon each others errors.

**Applies to Service:**

ATC (Air Traffic Control)

*Relationship#10*

*Service#17*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Situational Awareness

*Relationship#16*

*Theme#6*

**Is Required by:**

CNS/ATM Service Providers

*Relationship#30*

*Stakeholder#6*

The GAT (General Air Traffic) Airspace User Community

*Stakeholder#13*

**To be Addressed by:**

ATM Information Pool Management

*Relationship#29*

*Enabling Objective#4*

4.43 **As nowcasting covers part of the needs for elaborating TAFs, special met. forecasts one day ahead are required for pre-tactical flight planning** *Stakeholder Need#284*

**Description:**

There is a requirement for pre-tactical flight planning forecasts including precipitation and temperature one day ahead.

**Note:**

As nowcasting covers part of the needs for elaborating TAFs, special met. forecasts one day ahead are required for pre-tactical flight planning.

**Applies to Service:**

MET (Weather Services)

*Relationship#10*

*Service#6*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Meteorological Conditions

*Relationship#16*

*Theme#12*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Responsiveness to Information Needs

*Relationship#29*

*Enabling Objective#1*

4.44 **At major airports, light fixed wing aircraft should be allowed to use STOL runways to avoid using the same runways as heavy fixed wing aircraft** *Stakeholder Need#486*

**Background:**

Light fixed wing aircraft have a takeoff/landing capability comparable to STOL aircraft.

**Description:**

At major airports, light fixed wing aircraft should be allowed to use STOL runways to avoid using the same runways as heavy fixed wing aircraft.

**Applies to Service:**

CNS/ATM Services

*Relationship#10*

*Service#9*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Efficiency

*Relationship#16*

*Theme#50*

**Is Required by:**

GA (General Aviation)

*Relationship#30*

*Stakeholder#21*

**To be Addressed by:**

Best Use of Available Airport Capacity

*Relationship#29*

*Strategic Objective#10*

4.45 **ATFM has to incorporate flexible capacity management and include consideration of gate-to-gate operations** *Stakeholder Need#523*

**Applies to Service:**

ATFM (Air Traffic Flow Management)

*Relationship#10*

*Service#16*

**Has Source:**

ATM 2000+ Workshop (Luxemburg, Feb. 1998)

*Relationship#18*

*Meeting#2*

**Is about Theme:**

Capacity

*Relationship#16*

*Theme#28*

Integration

*Theme#49*

**Is Required by:**

The Aviation Industry

*Relationship#30*

*Stakeholder#1*

**To be Addressed by:**

Freedom of Movement and Service Quality Principle

*Relationship#29*

*Strategic Principle#4*

4.46 **ATM improvements should only be introduced after careful risk mitigation** *Stakeholder Need#499*

**Background:**

A first group of airspace user expectations can be traced to the system's existing performance shortfalls as perceived by the users, specially in the light of anticipated air traffic growth and the increasing pressure for cost-efficient flight operations.

A second category of expectations deals with the fear that a future system may introduce shortcomings which do not exist today.

**Description:**

Users generally wish that EATMS resolves the existing problems and does not introduce any new ones.

**Note:**

Today's shortcomings can be grouped under several major headings. The main ones which were expressed by the users are: insufficient flexibility, efficiency and transparency. Areas of concern regarding future developments mainly include: flight safety, security and uncoordinated expansion.

Although the capacity shortage is generally cited as the main problem to be solved by EATMS, capacity can be seen as an enabling factor for flexibility.

**Applies to Service:**

Air Navigation Services

*Relationship#10*

*Service#1*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Quality Assurance

*Relationship#16*

*Theme#42*

**Is Required by:**

Airspace Users

*Relationship#30*

*Stakeholder#3*

**To be Addressed by:**

Flexibility

Flight Efficiency

General Capacity Objective

General Safety Objective

*Relationship#29*

*Strategic Objective#16*

*Strategic Objective#17*

*Strategic Objective#9*

*Strategic Objective#1*

4.47

**ATM is required not to impose significant irregularities and delays on flight operations**

*Stakeholder Need#324*

**Background:**

In particular for commercial air transport, regularity and punctuality of flight operations have a major influence on both cost and revenues of an airline's operation. Rostering of crews and aircraft heavily determines the productivity of personnel and aircraft and is obviously dependent on a high degree of regularity and punctuality. Cancellations, diversions or delays of individual flights have immediate knock-on effects for those flights depending on the availability of the personnel and aircraft affected, since there are clear limitations to the provision of extra personnel or aircraft as an operational reserve.

Furthermore, the operator's flexibility to adjust the operation to irregularities or delays is constrained by flight- and duty time regulations of crews and night curfews at airports. In addition, a high degree of irregularities and delays affects the revenues of an airline, if passengers have a choice of contracting a more reliable airline.

**Description:**

EATMS is required not to impose significant irregularities and delays on flight operations.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ATFM (Air Traffic Flow Management)	<i>Service#16</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Efficiency	<i>Theme#50</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
Commercial Air Transport (Airlines)	<i>Stakeholder#20</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Predictability	<i>Strategic Objective#15</i>

4.48 **ATM must cater for IFR flight plans filed in the air, and have sufficient spare capacity (slots) to support such extra demand** *Stakeholder Need#463*

**Background:**

On the average, 92% of all General Aviation flights are VFR traffic and only 8% is IFR. However, under poor weather conditions a certain part of that VFR traffic will desire to switch to IFR. This leads to peaks in the IFR demand from GA.

**Description:**

EATMS must cater for IFR flight plans filed in the air, and have sufficient spare capacity (slots) to support such extra demand.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ATFM (Air Traffic Flow Management)	<i>Service#16</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Capacity	<i>Theme#28</i>
Flexibility	<i>Theme#20</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
GA (General Aviation)	<i>Stakeholder#21</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Flexibility	<i>Strategic Objective#16</i>
Information Acquisition Capabilities	<i>Enabling Objective#2</i>

4.49 **ATM must make a balanced trade-off between mandatory capabilities and non-segregation of traffic** *Stakeholder Need#378*

**Description:**

EATMS must strike the right balance between mandatory capabilities and non-segregation of traffic (airspace use and route structure). If an aircraft does not have a required capability (MIL traffic for example), segregation may be the only way to ensure flight safety.

**Note:**

This is against the shared use of airspace philosophy, reduces capacity and other system benefits.

**Applies to Service:**

ASM (Airspace Management)

*Relationship#10*

*Service#15*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:**

Airspace Users

*Relationship#30*

*Stakeholder#3*

**To be Addressed by:**

Fair Access to Airspace

*Relationship#29*

Mandating vs Incentive

*Strategic Objective#11*

*Trade-off Topic#4*

4.50

**ATM must provide capacity where and when needed. To achieve this, the ATM network must ensure optimum use of available capacity by optimisation tools**

*Stakeholder Need#461*

**Description:**

EATMS must provide capacity where and when needed. To achieve this, the system must ensure optimum use of available capacity by optimisation tools.

**Applies to Service:**

ATFM (Air Traffic Flow Management)

*Relationship#10*

*Service#16*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Capacity

*Relationship#16*

*Theme#28*

Optimisation

*Theme#23*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

General Capacity Objective

*Relationship#29*

*Strategic Objective#9*

4.51

**ATM must provide data and information to allow operators to determine their own operational efficiency**

*Stakeholder Need#392*

**Description:**

EATMS must provide data and information to allow operators to determine their own operational efficiency.

**Applies to Service:**

Quality of Service (Performance) Monitoring

*Relationship#10*

*Service#21*

<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Integration	<i>Theme#49</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
Commercial Air Transport (Airlines)	<i>Stakeholder#20</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Information Dissemination Capabilities	<i>Enabling Objective#3</i>

4.52 **ATM needs to be in a position to offer a variety of 2nd choice tactical alternatives in case of the inability of the operator to follow the foreseen flight plan / 4D trajectory** *Stakeholder Need#403*

**Description:**

EATMS needs to be in a position to offer a variety of 2nd choice tactical alternatives in case of the inability of the operator to follow the foreseen flight plan / 4D trajectory.

**Note:**

This applies to both during pre-flight planning and while airborne. For airborne aircraft, EATMS must provide flexibility to cater for emergencies and contingencies.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ATM (Air Traffic Management)	<i>Service#14</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Flexibility	<i>Theme#20</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
Commercial Air Transport (Airlines)	<i>Stakeholder#20</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Flexibility	<i>Strategic Objective#16</i>

4.53 **ATM services should be seamless from the users' point of view. There should be a clear distinction between the responsibilities of governments and the management of the ATM system** *Stakeholder Need#416*

**Background:**

Owing to the lack of a "centralised" authority there are many overlapping activities in the field of ATM which render co-ordination unnecessarily time consuming and cumbersome.

**Description:**

It is necessary for immediate action on the institutional and political front to adopt measures in order to provide an air traffic service which is seamless from the users' point of view.

There should be a clear distinction between the responsibilities for the functions to be performed by governments and the management of the ATM system.

**Applies to Service:**

Air Navigation Systems Planning & Development

*Relationship#10*

*Service#2*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Quality Assurance

*Relationship#16*

*Theme#42*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

General Uniformity Objective

*Relationship#29*

*Strategic Objective#21*

4.54

**ATM should accommodate users (GA/business) who want to fly to an airport in close proximity to a major one in order to minimise landing and service charges**

*Stakeholder Need#457*

**Background:**

1. General Aviation has no intrinsic desire to use major airports unless required by passengers to change to an airline flight.

2. General Aviation is forced to use major airports because nearby General Aviation airports lack instrument approach capability and restrict operating hours.

3. General Aviation is forced out of major airports through implementation of discriminatory user charges.

**Description:**

EATMS should focus on a system of airports, not only on the major (hub) ones.

As an example, EATMS should accommodate users (GA/business) who want to fly to an airport in close proximity to a major one in order to minimise landing and service charges.

**Note:**

The issue of accessibility is raised.

**Applies to Service:**

ATM (Air Traffic Management)

*Relationship#10*

*Service#14*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Accessibility (in space)

*Relationship#16*

*Theme#17*

<b>Is Required by:</b>	<i>Relationship#30</i>
GA (General Aviation)	<i>Stakeholder#21</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Fair Access to Airports	<i>Strategic Objective#12</i>
Fair Access to Required ATM Services	<i>Strategic Objective#13</i>

4.55      **ATM should attempt to minimise the environmental impact of air traffic by providing flexibility which allows as many optimal trajectories, defined by the operator, as possible**      *Stakeholder Need#397*

**Description:**

EATMS should attempt to minimise the environmental impact of air traffic by providing a flexible system that allows as many optimal trajectories, defined by the operator, as possible.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ATM (Air Traffic Management)	<i>Service#14</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Flexibility	<i>Theme#20</i>
Optimisation	<i>Theme#23</i>

<b>Is Required by:</b>	<i>Relationship#30</i>
Commercial Air Transport (Airlines)	<i>Stakeholder#20</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Flight Efficiency	<i>Strategic Objective#17</i>
Supplementary Environment Objectives	<i>Strategic Objective#18</i>

4.56      **ATM should be able to deal with the high military traffic volumes and priority rules which can be associated with times of crisis**      *Stakeholder Need#510*

**Background:**

Although military traffic only represents a small average portion of overall IFR traffic (3%), military peak loads may be very high.

**Description:**

EATMS should be able to deal with the high military traffic volumes and priority rules which can be associated with times of crisis.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ATFM (Air Traffic Flow Management)	<i>Service#16</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Capacity	<i>Theme#28</i>
Flexibility	<i>Theme#20</i>



Principles of Treatment

Theme#2

**Is Required by:**

Relationship#30

Governmental GAT (state aircraft flying as GAT)

Stakeholder#22

**To be Addressed by:**

Relationship#29

National Security and Defence Requirements: General Objective Strategic Objective#19

4.57

**ATM should be able to handle a mixture of aircraft equipment. However the lowest capability aircraft should not impose the Quality of Service (QoS) for all**

Stakeholder Need#370

**Description:**

EATMS should be specifically designed to handle a mixture of aircraft equipment. However the lowest capability aircraft should not impose the Quality of Service (QoS) for all.

**Applies to Service:**

Relationship#10

CNS/ATM Services

Service#9

**Has Source:**

Relationship#18

ATM User Requirements Workshop (Brussels, Sep. 1994)

Meeting#1

**Is about Theme:**

Relationship#16

Principles of Treatment

Theme#2

**Is Required by:**

Relationship#30

Commercial Air Transport (Airlines)

Stakeholder#20

**To be Addressed by:**

Relationship#29

Business-Driven Approach: to define a 'service levels' policy

Strategic Objective#26

Fair Access to Airports

Strategic Objective#12

Fair Access to Airspace

Strategic Objective#11

Fair Access to Required ATM Services

Strategic Objective#13

Individual vs Collective Benefit

Trade-off Topic#3

4.58

**ATM should contain internal redundancies and reconfiguration capabilities as needed to deliver a normal quality of service under the circumstances of equipment failures, faults, human error, etc.**

Stakeholder Need#357

**Background:**

The EATMS should provide its intended service at a very high level of availability, accuracy, integrity and continuity of function, to ensure the continuous efficient and safe operation of the user.

**Description:**

EATMS should contain internal redundancies and reconfiguration capabilities as needed to deliver a normal quality of service under the circumstances of equipment failures, faults, human error, etc.

**Note:**

EATMS system will have to operate at much higher reliability levels than today's because of the increased traffic loads (2.5 times?).

<b>Applies to Service:</b>	<i>Relationship#10</i>
ATS (Air Traffic Services)	<i>Service#3</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Survivability	<i>Theme#40</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
Commercial Air Transport (Airlines)	<i>Stakeholder#20</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
General Quality Management Objective	<i>Strategic Objective#20</i>

#### 4.59 **ATM should neither inhibit nor require the exercise of the sovereignty of the States over their own airspace** *Stakeholder Need#232*

##### **Background:**

The sovereignty of States over their own airspace must be recognised.

##### **Description:**

EATMS should neither inhibit nor require the exercise of the sovereignty of the States over their own airspace.

##### **Note:**

The States will decide whether civil or military users have access to their own airspace.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ASM (Airspace Management)	<i>Service#15</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Principles of Treatment	<i>Theme#2</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
Airspace Providers	<i>Stakeholder#5</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
National Security and Defence Requirements: General Objective	<i>Strategic Objective#19</i>

#### 4.60 **ATM should not play a role in the scheduling of airport capacity, but should be aware of the available airport capacity at all times in order to be able to maximise the use of that capacity** *Stakeholder Need#490*

##### **Background:**

As a result of differences in congestion level, airports can be divided into two categories: airports which are part of slot allocation schemes, and those for which there is no slot allocation. In either case:

**Description:**

EATMS should not play a role in the scheduling of airport capacity, but should be aware of the available airport capacity at all times in order to be able to maximise the use of that capacity.

Users also don't see a role for ATM in regulating traffic distribution between different airports.

**Applies to Service:**

ATFM (Air Traffic Flow Management)

*Relationship#10*

*Service#16*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Capacity

*Relationship#16*

*Theme#28*

Principles of Treatment

*Theme#2*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

The Airport Community

*Stakeholder#20*

*Stakeholder#4*

**To be Addressed by:**

Individual vs Collective Benefit

*Relationship#29*

*Trade-off Topic#3*

4.61

**ATM should organise a streaming of traffic with similar speed and climb performance characteristics, and where this is not possible, faster aircraft must be allowed to overtake the slower ones**

*Stakeholder Need#379*

**Description:**

With regard to aircraft performance differences, EATMS shall improve the traffic flows to achieve a sensible streaming of traffic with similar speed and climb performance characteristics, and where this is not possible, faster aircraft must be allowed to overtake the slower ones.

**Applies to Service:**

ATC (Air Traffic Control)

*Relationship#10*

*Service#17*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Flight Efficiency

*Relationship#29*

*Strategic Objective#17*

Individual vs Collective Benefit

*Trade-off Topic#3*

4.62 **ATM should remain human-centered in the foreseeable future** *Stakeholder Need#73*

**Description:**

Airspace users require man to remain an essential part of the aviation system. Both in the aircraft and on the ground, the role of man will be one of essentially supervising control.

This means that the process is being monitored, while control is initiated as appropriate, by either the air crew and/or ground crew, ultimately leading to re-negotiation of the prevailing 4D profile, including the effects of the disturbance or malfunctions that occurred.

**Note:**

The latter statement (4D profile) does not apply to some military, GA, Aerial Work and Special User categories.

There is a consensus amongst all airspace users that they want the EATMS system to monitor all IFR flights but they want a man (controller) on the ground for conflict resolution and emergency handling. The machine is no substitute. Users do not want to change the ICAO defined roles and responsibilities of the controller and the pilot, while recognising that those can be modified in the future EATMS.

**Applies to Service:**

ATC (Air Traffic Control)

*Relationship#10*

*Service#17*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Human Factors

*Relationship#16*

*Theme#3*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Human Involvement and Commitment

*Relationship#29*

*Strategic Objective#24*

4.63 **ATM should support, and take advantage of aircraft with cockpit traffic information display and ASAS capability** *Stakeholder Need#507*

**Background:**

There might be special procedures in circumstances (e.g. emergencies) requiring the pilot himself to maintain separation. To that effect:

**Description:**

EATMS must support the capability of having relevant traffic information on board the aircraft.

**Note:**

This information might be distributed by any means such as aircraft broadcast, EATMS message, etc.

<b>Applies to Service:</b>	<i>Relationship#10</i>
CNS services	<i>Service#10</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Situational Awareness	<i>Theme#6</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
The GAT (General Air Traffic) Airspace User Community	<i>Stakeholder#13</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Information Dissemination Capabilities	<i>Enabling Objective#3</i>

4.64 **Availability levels of tactical safety-critical services should be designed around safety objectives; availability of non-safety critical services around C/B principles** *Stakeholder Need#218*

**Description:**

The partial disruption of services should not have an adverse impact on flight safety. The most tactical services are the most time critical ones for flight safety and must therefore have the highest availability. Even short service interruptions of safety critical CNS services and executive control may pose a high safety risk so that adequate redundancy and contingency procedures need to be established. Significant changes in the CNS infrastructure, ATM concept and airborne capabilities foreseen within the framework of EATMS do not allow formulation of detailed requirements at this stage of development.

A balanced approach within the EATMS development based on cost-benefit aspects is required to determine the redundancies required for non-safety critical services whose disruption would have an adverse effect on the users' business.

**Note:**

A certain impact on the users' business in case of service disruptions will probably have to be accepted, since 100% reliability to exclude any adverse effect on the conduct of the users' business is probably not achievable. One could even argue that a service whose disruption does not have an effect on the users' business is not really needed by the users.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ATS (Air Traffic Services)	<i>Service#3</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Availability	<i>Theme#16</i>
Safety	<i>Theme#38</i>
Survivability	<i>Theme#40</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
The GAT (General Air Traffic) Airspace User Community	<i>Stakeholder#13</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Enhancing the Safety Management Methods	<i>Strategic Objective#2</i>

4.65 **Balloons primarily need access to airspace below 3000 ft AGL** *Stakeholder Need#482*

**Description:**

Balloons primarily need access to airspace below 3000 ft AGL, and are capable of complying with ground-based ATC instructions regarding maintaining a given altitude or predictable heading.

**Applies to Service:**

ASM (Airspace Management)

*Relationship#10*

*Service#15*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Accessibility (in space)

*Relationship#16*

*Theme#17*

**Is Required by:**

GA (General Aviation)

*Relationship#30*

*Stakeholder#21*

**To be Addressed by:**

Fair Access to Airspace

*Relationship#29*

*Strategic Objective#11*

4.66 **Before introducing ATM changes, evidence must be available that capacity improves while at least maintaining the present flight safety levels** *Stakeholder Need#464*

**Description:**

Before adding new functionality, evidence must be available that capacity improves while at least maintaining the present flight safety levels.

**Applies to Service:**

CNS/ATM Services

*Relationship#10*

*Service#9*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Capacity

*Relationship#16*

*Theme#28*

Safety

*Theme#38*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Freedom of Movement and Service Quality Principle

*Relationship#29*

*Strategic Principle#4*

- 4.67 **Before introducing ATM improvements, new possibilities for system failure (in the broadest sense) must be identified, and it must be ensured that their occurrence cannot compromise flight safety** *Stakeholder Need#381*

**Description:**

The introduction of new air traffic control techniques and new technologies may introduce new possibilities for system failure (in the broadest sense). Such possible failures must be identified, and it must be ensured that their occurrence cannot compromise flight safety.

**Applies to Service:**

ATS (Air Traffic Services)

*Relationship#10*

*Service#3*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Safety & Security

*Relationship#16*

*Theme#37*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Enhancing the Safety Management Methods

*Relationship#29*

*Strategic Objective#2*

- 4.68 **Being the final decision-maker in an ATM environment providing a high degree of flexibility for flight operations is of prime importance to the users** *Stakeholder Need#227*

**Background:**

Among other infrastructural constraints, the imbalance between the capacity of the current European ATM system(s) and demand in terms of movements during certain times and at certain locations heavily restricts the flexibility of flight planning and flight operations. The freedom to fly whenever and wherever the airspace users want to do so and to arrive at the destination on time as planned is restricted by various constraints imposed by the air transport infrastructure.

The legal responsibility of the aircraft operator for the safety of flight operations and the need to operate in the most cost-efficient manner (which includes the requirement to be enabled to flexibly adjust the operation to short term changes in demand or in the environment affecting flight operations) implies that the individual airspace users are in the role of decision-maker regarding their flight operations.

### Description:

The ATM system is required to assist the airspace users, rather than prescribing the users how to fly. This assistance should only go as far as required by each individual user. Being the decision-maker in an ATM environment providing a high degree of flexibility for flight operations is of prime importance to the users.

Flexibility means the following to the individual user:

- never be locked into a single course of action. In those cases where the system does not support the users' preference, they want to be informed about the available alternatives, and make their own choice;
- never be locked into a pre-planned course of action. If users decide that their original approved plan (trajectory) needs to be changed, for whatever reason, the system should support that request.

Collective flexibility refers to the right of the European airspace user community to grow, while maintaining or extending its existing diversity of users, each with their own operating characteristics and needs.

The users' desire for flexibility puts a number of flexibility requirements on EATMS:

EATMS should keep utmost flexibility with respect to

- users with different operating (mission) requirements;
- needs which are location specific (area differences);
- users with different equipment (aircraft, avionics);
- the flight scheduling process of the users; in other words: no pre-planned balancing of demand/schedules.

Flexibility is very difficult, if not impossible to achieve in a congested flight environment. Therefore capacity is a major enabling factor for user flexibility:

- EATMS is expected to always adjust its capacity to the demand;
- Part of the traffic demand consists of flights entering and exiting the ECAC airspace. For these flights, capacity planning must account for traffic flows and related restrictions in adjacent airspace.

### Applies to Service:

ATM (Air Traffic Management)

*Relationship#10*

*Service#14*

### Has Source:

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

### Is about Theme:

Capacity

*Relationship#16*

*Theme#28*

Flexibility

*Theme#20*

### Is Required by:

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

### To be Addressed by:

Flexibility

*Relationship#29*

*Strategic Objective#16*

General Capacity Objective

*Strategic Objective#9*



4.69 **Business aviation needs flexibility on departure times, routing and levels** *Stakeholder Need#343*

**Background:**

The main requirement of corporate business aviation is to arrive on time at destination of business. To achieve this:

**Description:**

Business aviation needs - and is able to - operate with a certain amount of flexibility on departure times, routing and levels. Possibility of a "ready to go" slot available within 15 minutes would be highly desirable.

**Applies to Service:**

ATFM (Air Traffic Flow Management)

*Relationship#10*

*Service#16*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Flexibility

*Relationship#16*

*Theme#20*

**Is Required by:**

GA (General Aviation)

*Relationship#30*

*Stakeholder#21*

**To be Addressed by:**

Flexibility

*Relationship#29*

*Strategic Objective#16*

4.70 **Certain services like AIS, MET, ARO should be integrated to improve the efficiency of these services to the users** *Stakeholder Need#417*

**Description:**

Certain services like AIS, MET, ARO should be integrated to improve the efficiency of these services to the users.

**Applies to Service:**

AIS, MET & Flight Plan Processing Services

*Relationship#10*

*Service#4*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Integration

*Relationship#16*

*Theme#49*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Ensure Cost Effective System Inter-Operability and Evolution  
Information Dissemination Capabilities

*Relationship#29*

*Strategic Objective#23*

*Enabling Objective#3*

4.71 **CNS systems for wholly aviation use should be avoided where possible, this will allow costs to be shared by all users. Cost recovery should occur as benefits are received** *Stakeholder Need#293*

**Background:**

This requirement addresses specific charging issues raised by the implementation of CNS/ATM. Although this is a new environment, all basic IATA / ICAO principles such as non-discrimination, cost relationship, financial transparency, etc. should still be adhered to.

**Description:**

It should be emphasised that the goal of CNS investment is an improved ATM that will result in operational efficiencies to the civil aviation community. Investments should be timed so that cost recovery will occur as benefits are received.

Systems for wholly aviation use should be avoided where possible, this will allow costs to be shared by all users.

Since there are already systems in place that can provide a global service, no State, group of States or service provider, should MANDATE that airlines use or pay for duplicate systems.

**Note:**

IATA supports global or regional co-ordination in research and development to avoid unnecessary duplication of effort with associated costs.

IATA supports competition between service providers. However, there may be circumstances where more than a single system will not be economically viable.

IATA encourages States or providers of CNS/ATM services to carry out cost benefit studies to ensure the most cost effective option and implementation method. Airlines must be involved in all cost benefit studies.

The IATA User Charges Panel (UCP) ICAO / FANS Working Group is still considering a number of issues which may have to be included in a more detailed supplementary paper to this policy statement.

**Applies to Service:**

Air Navigation Systems Planning & Development

*Relationship#10*

*Service#2*

**Has Source:**

IATA User Charges Panel (UCP) ICAO / FANS WG, User Charges Policy for CNS/ATM (4th Draft (22 July 1994))

*Relationship#18*

*Document#2*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

General Economic Objective: Cost Reduction

*Relationship#29*

*Strategic Objective#6*

- 4.72 **Cockpit Human Factors should be duly taken into account during the continued evolution of ATM** *Stakeholder Need#74*
- Description:**  
The user requires a co-operative system design which takes into account the cockpit human factors.
- Applies to Service:** *Relationship#10*  
Air Navigation Systems Planning & Development *Service#2*
- Has Source:** *Relationship#18*  
ATM User Requirements Workshop (Brussels, Sep. 1994) *Meeting#1*
- Is about Theme:** *Relationship#16*  
Human Factors *Theme#3*
- Is Required by:** *Relationship#30*  
Commercial Air Transport (Airlines) *Stakeholder#20*
- To be Addressed by:** *Relationship#29*  
Human Involvement and Commitment *Strategic Objective#24*
- 4.73 **Collaborative decision making based on improved planning procedures and information management is an important key to a more efficient, flexible and effective ATM system** *Stakeholder Need#518*
- Applies to Service:** *Relationship#10*  
Air Navigation Services *Service#1*
- Has Source:** *Relationship#18*  
ATM 2000+ Workshop (Luxemburg, Feb. 1998) *Meeting#2*
- Is about Theme:** *Relationship#16*  
Integration *Theme#49*
- Is Required by:** *Relationship#30*  
The Aviation Industry *Stakeholder#1*
- To be Addressed by:** *Relationship#29*  
Flexibility *Strategic Objective#16*  
Flight Efficiency *Strategic Objective#17*  
Information Management Issues *Enabling Issues#1*
- 4.74 **Collaborative decision making based on improved planning procedures and information management needs to be applied at both the strategic and tactical levels** *Stakeholder Need#519*
- Applies to Service:** *Relationship#10*  
Air Navigation Services *Service#1*
- Has Source:** *Relationship#18*  
ATM 2000+ Workshop (Luxemburg, Feb. 1998) *Meeting#2*
- Is about Theme:** *Relationship#16*  
Integration *Theme#49*

<b>Is Required by:</b>	<i>Relationship#30</i>
The Aviation Industry	<i>Stakeholder#1</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Information Management Issues	<i>Enabling Issues#1</i>

4.75      **Communications, Navigation and Surveillance systems have to be developed within a single coherent framework to more aggressive timescales**      *Stakeholder Need#524*

<b>Applies to Service:</b>	<i>Relationship#10</i>
Air Navigation Systems Planning & Development	<i>Service#2</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM 2000+ Workshop (Luxemburg, Feb. 1998)	<i>Meeting#2</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Timeliness	<i>Theme#31</i>

<b>Is Required by:</b>	<i>Relationship#30</i>
The Aviation Industry	<i>Stakeholder#1</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Ensure Cost Effective System Inter-Operability and Evolution	<i>Strategic Objective#23</i>

4.76      **Controllers, pilots and airline ops controllers need to have the authority and means to deal with in-flight contingencies. Nevertheless contingency scenarios are useful to facilitate tactical response**      *Stakeholder Need#347*

**Background:**

Contingencies have one thing in common. They occur unplanned. As a direct result, in-flight contingencies have to be handled on tactical level, not on a strategic level.

**Description:**

If the EATMS relies more on automated planning mechanisms for strategic and tactical planning purposes, there will be a requirement for that system to handle contingencies in an executive way. In other words, the controllers, pilots and airline ops controllers need to have the authority and means to deal with the contingency.

**Note:**

This should however not preclude the consideration of contingency scenarios to facilitate tactical response.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ATC (Air Traffic Control)	<i>Service#17</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Flexibility	<i>Theme#20</i>
Survivability	<i>Theme#40</i>

<b>Is Required by:</b>	<i>Relationship#30</i>
Airspace Users	<i>Stakeholder#3</i>
CNS/ATM Service Providers	<i>Stakeholder#6</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Enhancing the Safety Management Methods	<i>Strategic Objective#2</i>
Human Involvement and Commitment	<i>Strategic Objective#24</i>

4.77 **Corporate business aviation agrees with General Aviation for keeping airports and airspace open to all users** *Stakeholder Need#345*

**Description:**  
Corporate business aviation agrees with General Aviation for keeping airports and airspace open to all users.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ATM (Air Traffic Management)	<i>Service#14</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Availability	<i>Theme#16</i>

<b>Is Required by:</b>	<i>Relationship#30</i>
GA (General Aviation)	<i>Stakeholder#21</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Fair Access to Airports	<i>Strategic Objective#12</i>
Fair Access to Airspace	<i>Strategic Objective#11</i>

4.78 **Corporate business aviation shares many requirements with commercial air transport** *Stakeholder Need#344*

**Description:**  
Except where specified otherwise, corporate business aviation agrees with commercial air transport requirements.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ATS (Air Traffic Services)	<i>Service#3</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Principles of Treatment	<i>Theme#2</i>

<b>Is Required by:</b>	<i>Relationship#30</i>
GA (General Aviation)	<i>Stakeholder#21</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Individual vs Collective Benefit	<i>Trade-off Topic#3</i>

4.79 **Cost recovery should be on the basis of real usage of the system, and the principles should be visible to everyone** *Stakeholder Need#434*

**Description:**

Cost recovery should be on the basis of real usage of EATMS and the principles should be visible to everyone; the recovery should be based on the ICAO current principles.

The users wish billing to be based on the actual entry and exit points and NOT on the "most often used" routes.

Traceability of the bill is very important to the users.

There should be visibility and cost relation/orientation rather than cross-subsidisation.

Charging should be equitable e.g. split between military and civilian usage i.e. civilians pay for civil systems, and military pay for military systems.

**Applies to Service:**

Cost Recovery

*Relationship#10*

*Service#23*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Pricing Management

*Relationship#29*

*Strategic Objective#8*

4.80 **Data coming from adjacent areas should be processable by the European ATM network in order to provide a seamless transition of flights. This should be on the basis of ICAO standards** *Stakeholder Need#394*

**Description:**

EATMS should aim to harmonise the quality of service within ECAC and adjacent airspace in order to allow smooth transition of flights entering and exiting the ECAC airspace.

Data coming from adjacent areas should be processable by EATMS in order to provide a seamless transition of flights. ICAO standards are therefore required also for the ground-ground exchange of datalink messages.

**Applies to Service:**

Air Navigation Systems Planning & Development

*Relationship#10*

*Service#2*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Interoperability

*Relationship#16*

*Theme#22*

**Is Required by:** Relationship#30  
Commercial Air Transport (Airlines) Stakeholder#20  
**To be Addressed by:** Relationship#29  
Ensure Cost Effective System Inter-Operability and Evolution Strategic Objective#23  
Information Acquisition Capabilities Enabling Objective#2

4.81 **Decisions on mandating retrofit of airborne equipment capabilities must be based on cost/benefit analysis** Stakeholder Need#492

**Description:**  
Decisions on mandating retrofit of airborne equipment capabilities must be based on cost/benefit analysis.

**Applies to Service:** Relationship#10  
Air Navigation Systems Planning & Development Service#2  
**Has Source:** Relationship#18  
ATM User Requirements Workshop (Brussels, Sep. 1994) Meeting#1  
**Is about Theme:** Relationship#16  
Evolvability Theme#19

**Is Required by:** Relationship#30  
The GAT (General Air Traffic) Airspace User Community Stakeholder#13  
**To be Addressed by:** Relationship#29  
General Economic Objective: Cost Reduction Strategic Objective#6

4.82 **Due to mutual interdependencies, careful consideration of the implementation order for ATM and met. services is needed** Stakeholder Need#278

**Description:**  
Careful consideration of the implementation order for ATM and met. services is needed; the reason is that some met. services need certain ATM facilities to be in place and vice versa (interdependence of ATM and met. information).

EATMS should support the acquisition and distribution of data in a mixed environment of sophisticated and non-sophisticated traffic.

**Applies to Service:** Relationship#10  
Air Navigation Systems Planning & Development Service#2  
**Has Source:** Relationship#18  
ATM User Requirements Workshop (Brussels, Sep. 1994) Meeting#1  
**Is about Theme:** Relationship#16  
Evolvability Theme#19

**Is Required by:** Relationship#30  
Information Service Providers Stakeholder#17  
**To be Addressed by:** Relationship#29  
Ensure Cost Effective System Inter-Operability and Evolution Strategic Objective#23  
Information Acquisition Capabilities Enabling Objective#2

Information Dissemination Capabilities

Enabling Objective#3

4.83 **Due to the need for human acceptance, there must be a stepwise introduction of automation, rather than a big-bang transition** *Stakeholder Need#315*

**Background:**

Automation must be proven with very high confidence levels, because the operators (flight crew, controllers) must at the end accept the system.

**Description:**

Due to the need for human acceptance, there must be a stepwise introduction of automation, rather than a big-bang transition.

**Applies to Service:**

Air Navigation Systems Planning & Development

*Relationship#10*

*Service#2*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Evolvability

*Relationship#16*

*Theme#19*

Human Acceptance

*Theme#5*

**Is Required by:**

The Aviation Industry

*Relationship#30*

*Stakeholder#1*

**To be Addressed by:**

Human Involvement and Commitment

*Relationship#29*

*Strategic Objective#24*

4.84 **During tactical flight-planning, airspace users require highly up-to-date and accurate information on actual weather and forecast conditions** *Stakeholder Need#246*

**Description:**

It is required to have, during this phase:

- Continuous, accurate and complete observations on the present weather, for the interest and/or responsibility areas, including the departure, arrival and alternate aerodromes.
- Short term prognosis based upon real-time information required.
- Information obtained from "in-flight" to be integrated immediately.
- Increased frequency at which weather models are run, taking into account airborne data.

**Applies to Service:**

MET (Weather Services)

*Relationship#10*

*Service#6*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*



**Is about Theme:** *Relationship#16*  
Integration *Theme#49*

**Is Required by:** *Relationship#30*  
The GAT (General Air Traffic) Airspace User Community *Stakeholder#13*

**To be Addressed by:** *Relationship#29*  
ATM Information Pool Management *Enabling Objective#4*  
Information Dissemination Capabilities *Enabling Objective#3*

4.85 **ECAC should analyse its ground transition improvement plans and ensure that they will not create new problems in adjacent areas. The airborne ATM elements should be standardised on a global level** *Stakeholder Need#237*

**Description:**

The control capacity of each homogeneous area within ECAC and its adjacent airspace, even outside ECAC, needs to be developed in a harmonised way. To that effect, ECAC should get more pro-actively involved in this harmonisation process, in coordination with ICAO. ECAC should analyse its transition improvement plans and show that they will not create new problems in adjacent areas.

In particular, data from adjacent areas should be processable by EATMS providing seamless transition of flight.

Europe should try and influence the development in NAT of the data exchange standards, to ensure inter-operability.

Air/Ground data interchange with ATM must be standardised globally in order to allow interoperability of aircraft in all regions. This requires strong cooperation between the organizations in charge of the development of future ATM systems on a global level.

**Applies to Service:** *Relationship#10*  
Air Navigation Systems Planning & Development *Service#2*

**Has Source:** *Relationship#18*  
ATM User Requirements Workshop (Brussels, Sep. 1994) *Meeting#1*

**Is about Theme:** *Relationship#16*  
Interoperability *Theme#22*

**Is Required by:** *Relationship#30*  
Commercial Air Transport (Airlines) *Stakeholder#20*

**To be Addressed by:** *Relationship#29*  
Ensure Cost Effective System Inter-Operability and Evolution *Strategic Objective#23*  
Information Acquisition Capabilities *Enabling Objective#2*  
Information Dissemination Capabilities *Enabling Objective#3*

4.86      **Efficient coding and data compression techniques must be used for transferring weather data between air and ground**      *Stakeholder Need#341*

**Background:**

Air-ground data transfer must be minimised for reasons of cost and technology.

**Description:**

Ensure that, without loss of effective information, the volume of the products which have to be transmitted to aircraft is reduced to a minimum.

**Note:**

Minimizing air ground data transfer is a necessity because that is the expensive part of the transmission. This could be improved (with regard to the present situation) by using binary codes in place of alphanumeric ones.

Minimizing data transfer can be achieved by using a standard, efficient, binary code such as WMO GRIB.

**Applies to Service:**

COM (Communication Services)

*Relationship#10*

*Service#11*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Optimisation

*Relationship#16*

*Theme#23*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Information Dissemination Capabilities

*Relationship#29*

*Enabling Objective#3*

4.87      **English, rather than the local language should be used by all pilots involved in commercial air transport and at large airports so that everyone is aware of the surrounding traffic situation**      *Stakeholder Need#388*

**Background:**

Users support a global harmonisation of rules and procedures at the world-wide level, for a "global airman". ICAO is the appropriate vehicle to accomplish that. Harmonized FAA-JAA provisions may also supplement such efforts.

**Description:**

As a major element of this standardisation, all voice communications should be made in English. English is the ICAO aviation standard language for aircraft operations and should be used by all pilots involved in commercial air transport and at large airports so that pilots are aware of the surrounding traffic situation.

**Note:**

Use of local language for local operations is accepted ("tolerated") but has implications for overall safety of flights at aerodromes when foreign pilots operate in such conditions.

<b>Applies to Service:</b>	<i>Relationship#10</i>
COM (Communication Services)	<i>Service#11</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Human Factors	<i>Theme#3</i>
Standardisation	<i>Theme#47</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
The GAT (General Air Traffic) Airspace User Community	<i>Stakeholder#13</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Human Involvement and Commitment	<i>Strategic Objective#24</i>

4.88 **Environmental gains, together with any associated environmental related penalties, must be clearly spelt out in the Strategy** *Stakeholder Need#515*

<b>Applies to Service:</b>	<i>Relationship#10</i>
Air Navigation Systems Planning & Development	<i>Service#2</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM 2000+ Workshop (Luxemburg, Feb. 1998)	<i>Meeting#2</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Performance	<i>Theme#24</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
The Aviation Industry	<i>Stakeholder#1</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Environmental Issues	<i>Strategic Issues#5</i>

4.89 **European ATM improvements should occur in a regulatory framework duly related to ICAO, while making provisions for the different (most likely slower) pace at which the ICAO annexes are updated** *Stakeholder Need#448*

**Background:**

The aviation user community has been working very closely within the ICAO framework for the last 50 years. That framework is assumed as a given context, a "prerequisite" environment within which the users express their requirements in the URD. The requirements stated in this document will eventually, for the most part, be satisfied and realized within the ICAO umbrella.

The revision cycle of the EATMS URD - every one or two years - will allow for the dynamic update and documentation of users' needs while acknowledging the slower pace of implementation possible within the ICAO structure due to the formal consensus process and international notification/lead times. In order to shorten such cycles, ICAO make extensive use of provisional procedures, rules and documents (e.g. yellow colour reports) which provide early a good indication of potential requirements placed on users.

**Description:**

The application of, and the transition towards the new concepts, procedures and interfaces of EATMS should occur in a regulatory framework duly related to ICAO, while making adequate provisions for the different (most likely slower) pace at which the ICAO annexes are updated.

**Applies to Service:**

Air Navigation Systems Planning & Development

*Relationship#10*

*Service#2*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Evolvability

*Relationship#16*

*Theme#19*

Standardisation & Certification

*Theme#43*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

General Uniformity Objective

*Relationship#29*

*Strategic Objective#21*

4.90

**Except during short traffic peaks, the system should permanently have spare capacity, so as to enable an adequate level of tactical flexibility**

*Stakeholder Need#306*

**Description:**

Users said "no" to flow management, meaning to express their preference for a high capacity system which operates far below congestion levels, rather than a system whose capacity barely keeps up with traffic growth, and operates on the basis of highly efficient flow management techniques at near saturation level. The latter solution is considered weak in tactical flexibility, a feature which scores very high on the users' wish list. Certainly, the users do not want pre-planned demand/capacity balancing (EATMS not to tell operators what to put into the schedule).

**Applies to Service:**

ATFM (Air Traffic Flow Management)

*Relationship#10*

*Service#16*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Capacity

*Relationship#16*

*Theme#28*

Flexibility

*Theme#20*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Flexibility

*Relationship#29*

*Strategic Objective#16*

4.91 **Flights with a high statistical punctuality wish to be rewarded for this (e.g. lower charges, preferential treatment in departure / arrival sequencing)** *Stakeholder Need#476*

**Background:**

Slot allocation schemes serve to prevent the number of scheduled departures and arrivals from exceeding the declared airport capacity. This is a scheduling issue.

From an operational point of view, some operators are more willing than others to commit themselves to strict departure slots.

For example: for feeder flights, punctuality is important; for connecting flights, flexibility is important.

Due to such flexibility requirements, there may be differences between the operators' actual times of departure / arrival and the slot time. Today, if an operator does not meet his slot time, he is often to a more or lesser degree penalized by ATC (e.g. subject to ATC delays).

The following requirement only applies to flights departing from congested airports.

**Description:**

Flights with a high statistical punctuality wish to be rewarded for this (e.g. lower charges, preferential treatment in departure / arrival sequencing), while others who need high flexibility without corresponding ATC delays (they are more difficult to fit into the traffic flow) are willing to pay extra for that privilege.

**Note:**

This requirement is about the ability of the user to fulfill his side of the contract (his readiness to meet the scheduled departure / arrival times) and not about the ability of ATC to meet their side of the contract (to avoid ATC related delays).

**Applies to Service:**

ATFM (Air Traffic Flow Management)

*Relationship#10*

*Service#16*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Pricing Management

*Relationship#29*

*Strategic Objective#8*

4.92 **For IFR flights, airspace users want 'ATC by exception'** *Stakeholder Need#353*

**Description:**

For IFR flights, the user wants "ATC by exception".

**Note:**

ATC is only necessary for the case of any deviation from the agreed trajectory.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ATC (Air Traffic Control)	<i>Service#17</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Workload	<i>Theme#8</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
The GAT (General Air Traffic) Airspace User Community	<i>Stakeholder#13</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Flexibility	<i>Strategic Objective#16</i>

4.93 **For strategic flight planning purposes, aircraft operators wish access to climatological (statistical) information about enroute and surface (aerodrome) meteorological conditions** *Stakeholder Need#469*

**Description:**

For strategic flight planning purposes, aircraft operators wish access to the following climatological (statistical) information:

- upper winds, temperatures, pressure, humidity for all altitudes, and possibly statistics on visibility, cloud, turbulence, convection, mountain waves, etc.
- surface (aerodrome) meteorological conditions. This includes visibility, prevailing winds, runway conditions of rain, snow, ice etc.

**Note:**

The above information should be

- available in customised reports, in accordance with every special interest group's needs;
- available for each month in the year, and for various geographical areas and aerodromes in the ECAC area
- accessible to all airspace users;
- quickly and easily accessible;
- distributed in a standardised format.

<b>Applies to Service:</b>	<i>Relationship#10</i>
MET (Weather Services)	<i>Service#6</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Meteorological Conditions	<i>Theme#12</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
The GAT (General Air Traffic) Airspace User Community	<i>Stakeholder#13</i>

**To be Addressed by:**

Information Dissemination Capabilities  
Responsiveness to Information Needs

*Relationship#29*  
*Enabling Objective#3*  
*Enabling Objective#1*

4.94

**From an information point of view, A-SMGCS should be fully integrated with the rest of the ATM system**

*Stakeholder Need#504*

**Description:**

An integration of A-SMGCS and EATMS is required as a tool to keep the availability of a common flow of information exchange, in order to provide an efficient management of airport operations.

**Applies to Service:**

Navigation Services  
Surveillance Services

*Relationship#10*  
*Service#12*  
*Service#13*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*  
*Meeting#1*

**Is about Theme:**

Integration

*Relationship#16*  
*Theme#49*

**Is Required by:**

Commercial Air Transport (Airlines)  
The Airport Community

*Relationship#30*  
*Stakeholder#20*  
*Stakeholder#4*

**To be Addressed by:**

Ensure Cost Effective System Inter-Operability and Evolution  
Information Acquisition Capabilities

*Relationship#29*  
*Strategic Objective#23*  
*Enabling Objective#2*

4.95

**Future ASM, app/dep procedures, clearance delivery, traffic separation etc should accommodate the special needs of fast climbing jets, helicopters, VTOL and other aircraft with non-std characteristics**

*Stakeholder Need#418*

**Background:**

Fast climbing jets, helicopters and future advanced VTOL aircraft possess special flight performance characteristics. The fact that these characteristics are different from those of other aircraft, represents the real reason why there is a market for these aircraft categories.

On the other hand, unfortunately, present operational regulations and ATC systems are unable to properly deal with these performance characteristics. ATC tends to control these vehicles in the same way as other aircraft. This has several consequences:

- the vehicles do not have their full natural utility for their operators.

- instead of lowering traffic density by staying out of normal traffic flows, they contribute to congestion and represent a hindrance to other traffic due to their different flight performance.



**Description:**

In airspace management, approach and departure procedures, clearance delivery, traffic separation etc., EATMS needs to make special provisions for each category of aircraft with special flight characteristics.

**Note:**

These provisions must enable the operators to obtain full utility from their aircraft, and improve the overall traffic situation by keeping individual traffic flows as homogeneous as possible.

**Applies to Service:**

ATM (Air Traffic Management)

*Relationship#10*

*Service#14*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Flexibility

*Relationship#16*

*Theme#20*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Individual vs Collective Benefit

*Relationship#29*

*Trade-off Topic#3*

4.96

**Future ATM procedures should reduce the environmental impact of air traffic without compromising flight safety** *Stakeholder Need#440*

**Background:**

The environmental issues for the management of airport operations is a very sensitive subject. It is common that the airports management are faced with complaints from individuals, or groups representing individuals or, political representatives of the neighbouring airport areas. They are various kinds of complaints and arguments, in order to protest against living conditions in the region concerned, evoking the social rights, in some cases trying to get compensation etc. In order to relieve these problems and mainly because of the fact that it is world-wide recognised, that the normal living conditions of the inhabitants of the airports surrounding areas must be preserved, the airport operators need to respect some environmental agreements, which are imposed by normal civil law or in some cases are the subject of agreements with the civil representatives of the areas concerned.

**Description:**

It was felt by the Airport operators that during the design, development and implementation of EATMS the following requirements must be taken into consideration:

- Respect environmental agreements communicated by the airport authorities without compromising flight safety
- Establish ATM procedures which reduce the environmental impact of air traffic

**Applies to Service:**

Coordination with Aerodrome Operators

*Relationship#10*

*Service#25*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*



**Is about Theme:** Relationship#16  
Principles of Treatment Theme#2

**Is Required by:** Relationship#30  
The Airport Community Stakeholder#4

**To be Addressed by:** Relationship#29  
Environment Principle Strategic Principle#7  
Supplementary Environment Objectives Strategic Objective#18

4.97 **Future ATM should accommodate shared (non-segregated) use of airspace between civil (or military) Unmanned Aerial Vehicles (UAVs) and other commercial, military and general aviation traffic** Stakeholder Need#269

**Background:**

Operational meteorology and atmospheric research are faced with the difficulty of collecting data over oceans and remote areas of the globe. Unmanned lightweight aircraft are conceptually attractive for addressing such problems, especially since the introduction of GPS. Potential applications include in-situ measurements of state variables (pressure, temperature, humidity, air motion), of trace gases, and vertical soundings made either by the aircraft itself or by using dropsondes.

Such systems are already existing as prototypes (e.g. the PERSEUS Aircraft developed in the USA by AURORA Flight Services Corp., with the support of NASA). It is expected that these aircraft will be capable of fully autonomous operations over long ranges (several thousand km) and duration (several days), from sea level up to 20 km.

**Description:**

The new Air Traffic Management System should incorporate the management of Unmanned Aerial Vehicles (UAV's) in terms of flight authorizations and scheduling, take-off, in-flight and landing operations, as well as how they could interfere with commercial, military and general aviation traffic.

**Applies to Service:** Relationship#10  
ATS (Air Traffic Services) Service#3

**Has Source:** Relationship#18  
ATM User Requirements Workshop (Brussels, Sep. 1994) Meeting#1

**Is about Theme:** Relationship#16  
Interoperability Theme#22  
Principles of Treatment Theme#2

**Is Required by:** Relationship#30  
The UAV Operator Community (civil and military) Stakeholder#23

**To be Addressed by:** Relationship#29  
Fair Access to Airports Strategic Objective#12  
Fair Access to Airspace Strategic Objective#11  
Fair Access to Required ATM Services Strategic Objective#13  
Individual vs Collective Benefit Trade-off Topic#3

4.98 **GA needs indiscriminatory access to controlled airspace by aircraft with different performance levels, coupled with adequate C/B ratios, fair charging principles and ongoing ATM performance review** *Stakeholder Need#259*

**Description:**

- indiscriminatory access to controlled airspace
- EATMS must be able to handle all types of aircraft with different levels of avionics and must therefore consider mandatory capabilities rather than mandatory equipment for airspace accessibility
- in an advanced EATMS environment (datalink etc.), conventionally equipped aircraft should be entitled to a service quality not less than today's
- a cost/benefit analysis to be conducted prior to any phase of the implementation
- EATMS must allow for post flight performance measurement audits based on predetermined yardsticks and cost efficiency / cost analysis standards
- In close co-ordination with the users establish equitable cost sharing principles and formulas which provide for transparency and adoption of differentiated user charges for different services

**Applies to Service:**

ATS (Air Traffic Services)

*Relationship#10*

*Service#3*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Accessibility (in space)

*Relationship#16*

*Theme#17*

Performance

*Theme#24*

Principles of Treatment

*Theme#2*

Quality Assurance

*Theme#42*

**Is Required by:**

GA (General Aviation)

*Relationship#30*

*Stakeholder#21*

**To be Addressed by:**

Fair Access to Airspace

*Relationship#29*

General Economic Objective: Cost Reduction

*Strategic Objective#11*

Performance-Driven Approach

*Strategic Objective#6*

Pricing Management

*Strategic Objective#30*

*Strategic Objective#8*

4.99 **GA operators are seeking simple (low cost) communications means with ATM. A voice communications capability should always be available** *Stakeholder Need#423*

**Description:**

GA operators are seeking simple (low cost) communications means with EATMS. A voice communications capability should always be available.

<b>Applies to Service:</b>	<i>Relationship#10</i>
COM (Communication Services)	<i>Service#11</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Efficiency	<i>Theme#50</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
GA (General Aviation)	<i>Stakeholder#21</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Communication Capabilities	<i>Enabling Objective#7</i>

4.100      **GA operators without weather radar desire the in-flight capability to receive graphical weather information via datalink**      *Stakeholder Need#260*

**Description:**

Some General Aviation users want the capability of having weather data information on e.g. cumulonimbus formations (VOLMET, SIGMET) transmitted from the ground to on-board weather display equipment (moving maps).

There is a need for standards for such displays. This GA requirement differs from commercial air transport carriers which rather use their on-board weather radars.

SIGMET/VOLMET information should be made available on voice for VFR pilots.

<b>Applies to Service:</b>	<i>Relationship#10</i>
FIS (Flight Information Services)	<i>Service#8</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Integration	<i>Theme#49</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
GA (General Aviation)	<i>Stakeholder#21</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Information Dissemination Capabilities	<i>Enabling Objective#3</i>

4.101      **GA users want VFR and autonomous flight operations if Met. conditions and airspace classification permit it**      *Stakeholder Need#420*

**Description:**

GA users want VFR and autonomous flight operations if Met. conditions and airspace classification permit it.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ATC (Air Traffic Control)	<i>Service#17</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>

**Is about Theme:** *Relationship#16*  
Principles of Treatment *Theme#2*

**Is Required by:** *Relationship#30*  
GA (General Aviation) *Stakeholder#21*

**To be Addressed by:** *Relationship#29*  
Fair Access to Airspace *Strategic Objective#11*

4.102 **GA/business aviation users feel strongly about the protection of the emergency VHF/HF frequency** *Stakeholder Need#122*

**Description:**  
GA/business aviation users feel strongly about the protection of the emergency VHF/HF frequency.

**Applies to Service:** *Relationship#10*  
COM (Communication Services) *Service#11*

**Has Source:** *Relationship#18*  
ATM User Requirements Workshop (Brussels, Sep. 1994) *Meeting#1*

**Is about Theme:** *Relationship#16*  
Safety & Security *Theme#37*

**Is Required by:** *Relationship#30*  
GA (General Aviation) *Stakeholder#21*

**To be Addressed by:** *Relationship#29*  
Communication Capabilities *Enabling Objective#7*

4.103 **General Aviation aerobatics takes place in limited areas and does not require more than 4000 ft AGL** *Stakeholder Need#485*

**Description:**  
Aerobatics takes place in limited areas and does not require more than 4000 ft AGL.

**Applies to Service:** *Relationship#10*  
ASM (Airspace Management) *Service#15*

**Has Source:** *Relationship#18*  
ATM User Requirements Workshop (Brussels, Sep. 1994) *Meeting#1*

**Is about Theme:** *Relationship#16*  
Accessibility (in space) *Theme#17*

**Is Required by:** *Relationship#30*  
GA (General Aviation) *Stakeholder#21*

**To be Addressed by:** *Relationship#29*  
Fair Access to Airspace *Strategic Objective#11*

4.104      **General Aviation expects a flexible, cost effective system with responsive capacity management, able to handle a large diversity of aircraft and performance levels**      *Stakeholder Need#258*

**Description:**

GA expects constant conformance to all users' expectations;

EATMS should be a flexible, cost-effective system, designed to:

- provide capacity where and when needed
- adapt capacity to meet demand
- accept and handle aircraft of different performance and operating different equipment
- optimise service within capacity by operational procedures

GA has the same principal requirements when flying IFR as the commercial operators (8% of all GA flights are IFR). Although GA operators are not able to submit flight plans 180 days in advance, but can do so merely on an ad-hoc (short notice) basis, the system must be able to handle these requirements and generate the necessary slots according to GA demands.

**Applies to Service:**

ATS (Air Traffic Services)

*Relationship#10*

*Service#3*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Capacity

*Relationship#16*

*Theme#28*

Flexibility

*Theme#20*

**Is Required by:**

GA (General Aviation)

*Relationship#30*

*Stakeholder#21*

**To be Addressed by:**

General Capacity Objective

*Relationship#29*

*Strategic Objective#9*

4.105      **General Aviation needs sufficient UMAS, VFR access to MAS, free flight and dynamic routing, the ability to change flight rules while airborne, and access to information and airports**      *Stakeholder Need#329*

**Description:**

- relinquish reserved airspace and allocate sufficient uncontrolled airspace
- allow "free flight and dynamic routing concept" on a first come first served basis whenever possible (EATMS monitors flight safety and traffic flow and intervenes only to solve identified problems)
- facilitate change of flight rules (VFR/IFR and IFR/VFR) to optimise system usage
- provide access to information for planning purposes

GA access to airports must be handled in a non-discriminatory manner. Operators therefore require full and accurate information on flow management for IFR flight planning purpose. GA IFR flights request the same rights as commercial operators. EATMS must be able to handle this situation. No restrictions should be placed on VFR flights.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ATM (Air Traffic Management)	<i>Service#14</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Principles of Treatment	<i>Theme#2</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
GA (General Aviation)	<i>Stakeholder#21</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Fair Access to Airports	<i>Strategic Objective#12</i>
Fair Access to Airspace	<i>Strategic Objective#11</i>
Fair Access to Required ATM Services	<i>Strategic Objective#13</i>

4.106 **Groundworthiness certification is becoming an issue because with A/G datalink, the ground system is increasingly to be considered as an extension of the avionics** *Stakeholder Need#309*

**Background:**

Certification can become an issue because the ground system is increasingly to be considered as an extension of the avionics (pilot's view of the introduction of air/ground datalink).

**Description:**

Certification of "groundworthiness" should at least play a more formal role.

**Note:**

The responsibility for certification is expected to remain with the individual States according to internationally agreed standards. This certification process requires close cooperation between authorities in order to achieve interoperability between airborne and ground equipment.

<b>Applies to Service:</b>	<i>Relationship#10</i>
Air Navigation Systems Planning & Development	<i>Service#2</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Certification of Systems and Equipment	<i>Theme#46</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
Commercial Air Transport (Airlines)	<i>Stakeholder#20</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
General Quality Management Objective	<i>Strategic Objective#20</i>

4.107      **Human factors should be duly taken into account when considering improvements in the exchange and (cockpit) presentation of meteorological data**      *Stakeholder Need#277*

**Description:**

Human factors require general consideration - the presentation of weather data from ground based weather radar stations and having ground based weather radar data displayed on the flight deck.

Good quality short term forecasts are needed at airports providing TREND information with a high degree of accuracy.

A better understanding is needed between air traffic controllers, Met. observers and forecasters and pilots on Met. issues.

**Applies to Service:**

Coordination with Weather Service Providers

*Relationship#10*

*Service#26*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Human Factors

*Relationship#16*

*Theme#3*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Human Involvement and Commitment

*Relationship#29*

Information Dissemination Capabilities

*Strategic Objective#24*

*Enabling Objective#3*

4.108      **If restrictions are confirmed, the CFMU should offer alternative solutions to minimise the deviation from the original requirement**      *Stakeholder Need#59*

**Description:**

It is required that:

- If restrictions are confirmed, the CFMU should offer alternative solutions to minimise the deviation from the original requirement.

**Applies to Service:**

ATFM (Air Traffic Flow Management)

*Relationship#10*

*Service#16*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Flexibility

*Relationship#16*

*Theme#20*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Flexibility

*Relationship#29*

*Strategic Objective#16*

4.109      **Implementation management mechanisms have to be clearly defined and rigorously enforced**      *Stakeholder Need#526*

<b>Applies to Service:</b>	<i>Relationship#10</i>
Air Navigation Systems Planning & Development	<i>Service#2</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM 2000+ Workshop (Luxemburg, Feb. 1998)	<i>Meeting#2</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Quality Assurance	<i>Theme#42</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
The Aviation Industry	<i>Stakeholder#1</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
The ATM 2000+ Strategy Management Process	<i>Process#1</i>

4.110      **In case of ATM service degradation, airspace users want visibility i.e. knowledge on service quality expected, information about the degradation of ATM operations, ATC resources, means**      *Stakeholder Need#358*

**Description:**  
In the extremely remote possibility of an EATMS service degradation, it is imperative that the degradation is made completely known to all users of the service.

In addition, adequate processes and procedures should be designed and put in place so that any consequence of a service degradation is kept to the minimum.

**Note:**  
The airspace user wants visibility i.e. knowledge on service quality expected, information about the degradation of ATM operations, ATC resources, means.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ATS (Air Traffic Services)	<i>Service#3</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Situational Awareness	<i>Theme#6</i>
Survivability	<i>Theme#40</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
Airspace Users	<i>Stakeholder#3</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Information Dissemination Capabilities	<i>Enabling Objective#3</i>
Responsiveness to Information Needs	<i>Enabling Objective#1</i>



4.111 **In future ATM, an enhanced Planned Flight Data (PFD) submission should obviate the need for strategic flight planning (RPL)** *Stakeholder Need#473*

**Description:**

In EATMS, an enhanced Planned Flight Data (PFD) submission should obviate the need for strategic flight planning (RPL).

**Applies to Service:**

Flight Plan Processing Services

*Relationship#10*

*Service#7*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Integration

*Relationship#16*

*Theme#49*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Information Acquisition Capabilities

*Relationship#29*

*Enabling Objective#2*

4.112 **In future ATM, certain VFR operations should be possible with a minimum of equipment (e.g. not even VHF radio for gliders and microlights)** *Stakeholder Need#421*

**Description:**

In EATMS, certain VFR operations should be possible with a minimum of equipment (e.g. not even VHF radio for gliders and microlights).

**Note:**

Pure VFR flying should remain possible with a speed indicator and an altimeter only.

**Applies to Service:**

CNS/ATM Services

*Relationship#10*

*Service#9*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:**

GA (General Aviation)

*Relationship#30*

*Stakeholder#21*

**To be Addressed by:**

Fair Access to Airports

*Relationship#29*

*Strategic Objective#12*

Fair Access to Airspace

*Strategic Objective#11*

4.113 **In future ATM, on a tactical level, real time coordination is needed to ensure that all TSA airspace is made available for civil use at the earliest possible moment** *Stakeholder Need#509*

**Background:**

All flight phases (except the mission phase) can be conducted by either the civil or the military system. From the pilots' point of view, both systems should handle normal operations in accordance with same procedure.

**Description:**

EATMS must cater for different standards of military and civil equipment (e.g. minimum navigation requirements); military aircraft, flying regularly in civil airspace, must be assumed to meet with relevant requirements.

Due to the military flexibility requirement, certain initial overbooking of airspace on pre-tactical level will occur. However in EATMS, on a tactical level, real time coordination is needed to ensure that all unused airspace is made available for civil use at the earliest possible moment (flexible use of airspace). As a result, there is a need for further automation of the airspace management interface between civil and military centers.

The interoperability between civil and military systems should be ensured. In particular, data exchange between Military & Civilian should, if any, minimise constraints on Civilian developments.

**Note:**

It has to be noted that ACCS is a NATO initiative, while on the other hand peace time airspace management and control is a national matter. In other words: EATMS will deal with

- individual states for the peace time airspace management interface
- the NATO ACCS and/or other defense systems for military traffic coordination matters

**Applies to Service:**

ASM (Airspace Management)

*Relationship#10*

*Service#15*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Interoperability

*Relationship#16*

*Theme#22*

**Is Required by:**

The OAT (Operational Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#14*

**To be Addressed by:**

Information Acquisition Capabilities

*Relationship#29*

*Enabling Objective#2*

National Security and Defence Requirements: General Objective

*Strategic Objective#19*

4.114      **In times of exceptional circumstances, the CFMU should notify the users of the restrictions that are foreseen on the next day**      *Stakeholder Need#58*

**Description:**

It is required that:

- In times of exceptional circumstances, the CFMU should notify the users of the restrictions that are foreseen.

**Applies to Service:**

ATFM (Air Traffic Flow Management)

*Relationship#10*

*Service#16*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Integration

*Relationship#16*

*Theme#49*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Information Dissemination Capabilities

*Relationship#29*

*Enabling Objective#3*

4.115      **Increasing the productivity of the air traffic controllers through the extensive use of computer support tools is a critical factor in finding the extra capacity needed**      *Stakeholder Need#521*

**Applies to Service:**

ATC (Air Traffic Control)

*Relationship#10*

*Service#17*

**Has Source:**

ATM 2000+ Workshop (Luxemburg, Feb. 1998)

*Relationship#18*

*Meeting#2*

**Is about Theme:**

Capacity

*Relationship#16*

*Theme#28*

Workload

*Theme#8*

**Is Required by:**

The Aviation Industry

*Relationship#30*

*Stakeholder#1*

**To be Addressed by:**

General Capacity Objective

*Relationship#29*

*Strategic Objective#9*

4.116      **It is the responsibility of ATM to ensure that in each flight phase the current high flight safety levels are at least maintained**      *Stakeholder Need#380*

**Background:**

The users stressed that flight safety is paramount for all phases of flight, from block to block. Aircraft will encounter increased traffic densities during all flight phases, each of which has its own specific flight safety risks.

**Description:**

It is the responsibility of EATMS to ensure that in each flight phase the current high flight safety levels are at least maintained. Special attention should be paid to the flight phases with the weakest safety record.

**Applies to Service:**

ATC (Air Traffic Control)

*Relationship#10*

*Service#17*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Safety

*Relationship#16*

*Theme#38*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Enhancing the Safety Management Methods

*Relationship#29*

*Strategic Objective#2*

4.117

**It should always be possible to change a trajectory in order to handle an in-flight contingency. Partial system failure on the ground should never have an impact on flight safety**

*Stakeholder Need#382*

**Background:**

Problems can occur in the air as well as on the ground, regardless of traffic load. In-flight contingencies must be handled in an executive way, that is, the system must respond to them as and when they occur.

**Description:**

It should always be possible to change a trajectory in order to handle an in-flight contingency.

EATMS should be designed such that partial system failure on the ground, e.g. due to technical reasons or industrial action, will have no impact on flight safety.

**Applies to Service:**

ATC (Air Traffic Control)

*Relationship#10*

*Service#17*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Flexibility

*Relationship#16*

*Theme#20*

Safety

*Theme#38*

Survivability

*Theme#40*

**Is Required by:**

Airspace Users

*Relationship#30*

*Stakeholder#3*

CNS/ATM Service Providers

*Stakeholder#6*

**To be Addressed by:**

Enhancing the Safety Management Methods

*Relationship#29*

*Strategic Objective#2*

4.118 **It should be sufficient to send flight plans to a single address for dissemination as appropriate** *Stakeholder Need#471*

**Description:**

In EATMS, it should be sufficient to send flight plans to a single address for dissemination as appropriate.

**Applies to Service:**

Flight Plan Processing Services

*Relationship#10*

*Service#7*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Integration

*Relationship#16*

*Theme#49*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Information Acquisition Capabilities

*Relationship#29*

*Enabling Objective#2*

4.119 **It should not be necessary for helicopters to be put on elongated circuits or to fly a whole fixed-wing pattern** *Stakeholder Need#439*

**Background:**

There is a requirement that the EATMS, in the VFR and IFR departure and arrival phase, set up procedures and treat helicopters in such a manner as to utilise their unique flight characteristics and their often very advanced state of the art navigation / avionics capability.

**Description:**

It should not be necessary for helicopters to be put on elongated circuits or to fly a whole pattern.

**Note:**

They prefer to be told to slow down and then come in at an angle to a landing point adjacent to the runway in use by heavy fixed wing aircraft.

Wake turbulence constraints will duly have to be considered.

**Applies to Service:**

ATC (Air Traffic Control)

*Relationship#10*

*Service#17*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Efficiency

*Relationship#16*

*Theme#50*

**Is Required by:**

GA (General Aviation)

*Relationship#30*

*Stakeholder#21*

**To be Addressed by:**

Individual vs Collective Benefit

*Relationship#29*

*Trade-off Topic#3*

4.120 **It will be important for a quality of service monitoring and control system to form an integral part of the future ATM network** *Stakeholder Need#210*

**Description:**

It will be important for a quality of service monitoring and control system to form an integral part of EATMS.

**Note:**

The parameters to be managed should include information on delays and excess route lengths.

**Applies to Service:**

Quality of Service (Performance) Monitoring

*Relationship#10*

*Service#21*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Quality Assurance

*Relationship#16*

*Theme#42*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Performance-Driven Approach

*Relationship#29*

*Strategic Objective#30*

4.121 **Lead times and pre-notification for mandating new airborne capabilities need to ensure the availability of the equipment incl. certification, and sufficient time for installation and training** *Stakeholder Need#494*

**Description:**

Lead times and pre-notification for mandating new airborne capabilities need to ensure, in particular,

1. the availability of the equipment including certification for aircraft types concerned.
2. the capability of all aircraft operators concerned to install the required equipment according to a justifiable schedule, taking care in particular to avoid irregular grounding times.
3. appropriate training and familiarisation of all personnel affected (e.g. flight crews and maintenance personnel) with new equipment capabilities and related operating and maintenance procedures.

**Applies to Service:**

Air Navigation Systems Planning & Development

*Relationship#10*

*Service#2*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Certification

Education and Training

Evolvability

*Relationship#16*

*Theme#44*

*Theme#4*

*Theme#19*

Timeliness

Theme#31

**Is Required by:**

Relationship#30

The GAT (General Air Traffic) Airspace User Community

Stakeholder#13

**To be Addressed by:**

Relationship#29

Ensure Cost Effective System Inter-Operability and Evolution

Strategic Objective#23

Mandating vs Incentive

Trade-off Topic#4

**4.122 Legal liability issues must be clarified as a prerequisite to adding more automation** Stakeholder Need#317**Description:**

Aspects of responsibility for incidents must be clarified before more automation is added.

**Applies to Service:**

Relationship#10

Air Navigation Systems Planning &amp; Development

Service#2

**Has Source:**

Relationship#18

ATM User Requirements Workshop (Brussels, Sep. 1994)

Meeting#1

**Is about Theme:**

Relationship#16

Liability and Responsibility

Theme#11

**Is Required by:**

Relationship#30

The GAT (General Air Traffic) Airspace User Community

Stakeholder#13

**To be Addressed by:**

Relationship#29

Harmonising Safety Regulations

Strategic Objective#5

**4.123 Limitations in the data exchange between military and civil systems should not impose constraints on civilian developments** Stakeholder Need#468**Description:**

Data exchange between military and civil system should not impose constraints on civilian developments.

**Applies to Service:**

Relationship#10

Civil / Military Coordination

Service#27

**Has Source:**

Relationship#18

ATM User Requirements Workshop (Brussels, Sep. 1994)

Meeting#1

**Is about Theme:**

Relationship#16

Interoperability

Theme#22

**Is Required by:**

Relationship#30

The GAT (General Air Traffic) Airspace User Community

Stakeholder#13

**To be Addressed by:**

Relationship#29

Ensure Cost Effective System Inter-Operability and Evolution

Strategic Objective#23

National Security and Defence Requirements: General Objective

Strategic Objective#19

4.124 **Mandating avionic capabilities must be on the basis of global standards in order to cater for the interoperability of aircraft flying into or coming from regions outside Europe** *Stakeholder Need#377*

**Description:**

Mandating avionic capabilities must be on the basis of global standards in order to cater for the interoperability of aircraft flying into or coming from regions outside the scope of EATMS.

**Note:**

Generally, there is a lead time of seven years between the announcement of mandating airborne capabilities and its enforcement.

**Applies to Service:**

Air Navigation Systems Planning & Development

*Relationship#10*

*Service#2*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Interoperability

*Relationship#16*

*Theme#22*

Standardisation

*Theme#47*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

General Uniformity Objective

*Relationship#29*

*Strategic Objective#21*

4.125 **Mandating should be in terms of capabilities and not in terms of equipment** *Stakeholder Need#375*

**Description:**

The users wish to see a policy in which all mandatory equipment requirements are replaced by mandatory capability requirements.

**Note:**

The choice of equipment must be left with the users, provided the equipment meets the required performance specifications. This is ensured by certification.

**Applies to Service:**

Air Navigation Systems Planning & Development

*Relationship#10*

*Service#2*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Mandating vs Incentive

*Relationship#29*

*Trade-off Topic#4*



4.126 **Mandating should be in terms of capabilities and not in terms of equipment (GA requirement)** *Stakeholder Need#422*

**Description:**

The GA users do not want equipment types imposed on them. EATMS should define functional requirements, not avionics.

**Applies to Service:**

CNS/ATM Services

*Relationship#10*

*Service#9*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:**

GA (General Aviation)

*Relationship#30*

*Stakeholder#21*

**To be Addressed by:**

General Uniformity Objective

*Relationship#29*

*Strategic Objective#21*

4.127 **Mandatory capabilities at certain locations are accepted if a clear plan is available and adequate C/B ratio benefits have been demonstrated** *Stakeholder Need#376*

**Description:**

Care must be taken by the service providers to avoid unnecessary mandating.

**Note:**

Mandatory capabilities at certain locations are accepted if a clear plan is available and adequate C/B ratio benefits have been demonstrated.

Users must be kept informed of all developments and timescales to enable them to tailor their equipage programmes to suit the particular needs for particular routes/destinations.

**Applies to Service:**

Air Navigation Systems Planning & Development

*Relationship#10*

*Service#2*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Mandating vs Incentive

*Relationship#29*

*Trade-off Topic#4*

- 4.128      **Mechanisms should be put in place to ensure appropriate authority, responsibility and data control of aviation weather information, so that the various parties use a coherent set of Met. data**      *Stakeholder Need#498*

**Background:**

The Met. sub-group at the EATMS User Requirements Workshop expressed concern over the possibility of different agencies using different data.

**Description:**

Mechanisms should be put in place to ensure appropriate authority, responsibility and data control of aviation weather information, so that the various Users, ATS Service Providers and Weather Service Providers use a coherent set of Met. data.

**Applies to Service:**

Coordination with Weather Service Providers

*Relationship#10*

*Service#26*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Legal Aspects

*Relationship#16*

*Theme#9*

**Is Required by:**

Information Service Providers

*Relationship#30*

*Stakeholder#17*

**To be Addressed by:**

ATM Information Pool Management

*Relationship#29*

*Enabling Objective#4*

- 4.129      **Met Service Providers have a number of requirements regarding better Information Management**      *Stakeholder Need#387*

**Background:**

The following statements were recorded during the EATMS User Requirements Workshop:

**Description:**

- From the flight safety aspect, the checks to be performed on raw (i.e. unprocessed) data need to be defined; note that this does not imply using a sophisticated approach, and could mean simply eliminating suspect data;
- There is a need for more automatic monitoring, e.g. comparison of met. observations with previous report, comparison with other local reports. Elements such as barometric pressure, which affect aircraft height readings, require special consideration.
- With regard to contingency in situations of computer malfunction, the following requirement was identified: the flight safety implications of reliance on met. data for accurate trajectory prediction need to be assessed, for example, examining the necessity to have human backup when met. computers fail. There is also the requirement to examine the effect of computer malfunction on flow rates;
- Better ATM creates the opportunity to reduce contingency fuel, therefore the integrity of the data in ATM systems is important;
- Predicted met. data need to be distributed to the end user in good time - it is a perishable product.
- Research is required into the effectiveness of improving met. information; this is particularly so for limiting conditions (e.g. fog) which affect operations and on aspects such as the contribution of met. (actual & short term forecast) to operations including stacking priority.
- Meteorological cost-benefit studies in the context of ATM are necessary; these should consider particularly the partnership of ATM and met. providers; cost-benefit studies related to cost of achieving particular levels of accuracy are required. Published USA work was referred to.
- Cost-recovery for met. services is the subject of on-going consideration by ICAO and changes are being considered for the near future.
- There is a requirement to have Met. information originating inside the European Region made available outside for aircraft entering the region.
- ICAO Annex III needs re-interpretation for future met. scenarios. Possible conflict with this and other ICAO documents should be considered, given the long timescales for their amendment. A suggestion to divide the European ANP into two volumes was made as a means of reducing the timescales.

**Applies to Service:**

Coordination with Weather Service Providers

*Relationship#10*

*Service#26*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Accuracy  
Efficiency  
Evolvability  
Integration  
Integrity  
Safety  
Survivability

*Relationship#16*

*Theme#25*

*Theme#50*

*Theme#19*

*Theme#49*

*Theme#21*

*Theme#38*

*Theme#40*

Timeliness

Theme#31

**Is Required by:**

Relationship#30

Information Service Providers

Stakeholder#17

**To be Addressed by:**

Relationship#29

ATM Information Pool Management

Enabling Objective#4

Information Acquisition Capabilities

Enabling Objective#2

Information Dissemination Capabilities

Enabling Objective#3

**4.130 Met Service Providers have a number of requirements regarding better Information Management**

Stakeholder Need#444

**Background:**

Data volumes depend on the time criticality of the information, because this has an impact on the measurement and update frequency.

**Description:**

Facilities are required to predict and communicate the required quantity of data both between ground and aircraft and between ground users

The data volume sent at any given time should be reasonable (i.e., not too large to clog the lines, unless the communication links are dedicated).

A greater frequency of measurements is required for improved modelling.

It is likely that a 4D grid will be used initially to represent and transmit data. There is the requirement to have at least one observation in a given 4-dimensional box (typical sizes may be 15nm x 15nm x 2000 ft x 30 mins) as necessary to be able to update small scale features of the meteorological fields with current nowcasting/forecasting methods. Grid size, however, is related to accuracy requirements.

There is a timeliness requirement for data uplinked to aircraft.

The update frequency of forecasts (and their transmission to users) to reach a given performance level needs to be determined.

**Applies to Service:**

Relationship#10

Coordination with Weather Service Providers

Service#26

**Has Source:**

Relationship#18

ATM User Requirements Workshop (Brussels, Sep. 1994)

Meeting#1

**Is about Theme:**

Relationship#16

Accuracy

Theme#25

Frequency

Theme#33

Optimisation

Theme#23

Throughput Capacity

Theme#30

Timeliness

Theme#31

**Is Required by:**

Relationship#30

Information Service Providers

Stakeholder#17

**To be Addressed by:**

Relationship#29

ATM Information Pool Management

Enabling Objective#4

Information Acquisition Capabilities *Enabling Objective#2*  
Information Dissemination Capabilities *Enabling Objective#3*

4.131 **Meteorologists need a better measurement and categorisation of the scale of intensity of meteorological phenomena** *Stakeholder Need#335*

**Background:**

Every meteorological phenomenon has to be evaluated by means of a direct or derived physical measurement. This can be a continuous variable or a classification into categories.

**Description:**

Meteorologists need a better measurement and categorisation of the scale of intensity of meteorological phenomena, such as CAT, effect of CBs, windshear.

**Note:**

This requirement needs to be taken into account when developing new standards for air/ground or ground/ground met. data exchange.

**Applies to Service:**

Coordination with Weather Service Providers

*Relationship#10*

*Service#26*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Standardisation

*Relationship#16*

*Theme#47*

**Is Required by:**

Information Service Providers

*Relationship#30*

*Stakeholder#17*

**To be Addressed by:**

ATM Information Pool Management

*Relationship#29*

*Enabling Objective#4*

4.132 **Microlights, conventional light aircraft, and helicopters used for recreational flying primarily need uncontrolled airspace below 3000 ft AGL** *Stakeholder Need#481*

**Description:**

Microlights, conventional light aircraft, and helicopters used for recreational flying primarily need uncontrolled airspace below 3000 ft AGL, and are capable of complying with ground-based ATC instructions regarding maintaining a given altitude or predictable heading.

**Applies to Service:**

ASM (Airspace Management)

*Relationship#10*

*Service#15*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Accessibility (in space)

*Relationship#16*

*Theme#17*

**Is Required by:**

*Relationship#30*

GA (General Aviation)	Stakeholder#21
<b>To be Addressed by:</b>	Relationship#29
Fair Access to Airspace	Strategic Objective#11

4.133      **Model flying takes place in limited areas and does not require more than 4000 ft AGL**      Stakeholder Need#484

**Description:**  
Model flying takes place in limited areas and does not require more than 4000 ft AGL.

<b>Applies to Service:</b>	Relationship#10
ASM (Airspace Management)	Service#15

<b>Has Source:</b>	Relationship#18
ATM User Requirements Workshop (Brussels, Sep. 1994)	Meeting#1

<b>Is about Theme:</b>	Relationship#16
Accessibility (in space)	Theme#17

<b>Is Required by:</b>	Relationship#30
GA (General Aviation)	Stakeholder#21

<b>To be Addressed by:</b>	Relationship#29
Fair Access to Airspace	Strategic Objective#11

4.134      **Need for a common Cost/Benefit methodology and application of common C/B principles to the entire ECAC area**      Stakeholder Need#409

**Description:**  
EATMS should be developed using Cost Benefit Principles for the entire area instead of for individual states. Users agreed that a common C/B methodology is essential.

<b>Applies to Service:</b>	Relationship#10
Air Navigation Systems Planning & Development	Service#2

<b>Has Source:</b>	Relationship#18
ATM User Requirements Workshop (Brussels, Sep. 1994)	Meeting#1

<b>Is about Theme:</b>	Relationship#16
Quality Assurance	Theme#42

<b>Is Required by:</b>	Relationship#30
The Aviation Industry	Stakeholder#1

<b>To be Addressed by:</b>	Relationship#29
General Economic Objective: Cost Reduction	Strategic Objective#6

#### 4.135 Need for a European AIS Database (EAD)

Stakeholder Need#348

**Description:**

In respect to the AIP publications of the various European States and their contents for pre-flight planning activities, there is a need to:

- Standardise the system information format.
- Ensure the accuracy and timeliness of the data.
- Integrate all AIP data-bases.
- Ensure the integrity of the information stored in the data-bases.

**Applies to Service:**

AIS (Aeronautical Information Services)

Relationship#10  
Service#5

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

Relationship#18  
Meeting#1

**Is about Theme:**

Accuracy  
Integration  
Integrity  
Standardisation  
Timeliness

Relationship#16  
Theme#25  
Theme#49  
Theme#21  
Theme#47  
Theme#31

**Is Required by:**

Airspace Users

Relationship#30  
Stakeholder#3

**To be Addressed by:**

ATM Information Pool Management

Relationship#29  
Enabling Objective#4

#### 4.136 Need for a gate-to-gate approach in ATM, to adequately cover ground movement matters

Stakeholder Need#332

**Description:**

In order to ensure that airport and ground movement matters are successfully covered by EATMS, it will be essential for EATMS planning teams to work closely with the relevant ICAO and APATSI committees.

**Applies to Service:**

ATC (Air Traffic Control)

Relationship#10  
Service#17

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

Relationship#18  
Meeting#1

**Is about Theme:**

Integration

Relationship#16  
Theme#49

**Is Required by:**

Commercial Air Transport (Airlines)  
The Airport Community

Relationship#30  
Stakeholder#20  
Stakeholder#4

**To be Addressed by:**

General Uniformity Objective

Relationship#29  
Strategic Objective#21

#### 4.137 Need for a gate-to-gate approach to ATM

Stakeholder Need#321

##### Background:

In many cases, today's system does not permit the airspace users to fly the most cost efficient trajectory.

Due to the significance of taxi times for part of the flights, users measure this cost efficiency from block to block. In other words, the 4D trajectory starts and ends at a gate, and includes the taxi route and time, and any ground holding at the airport.

##### Description:

EATMS must, in the provision of its services, deal with flights as a whole (block to block), instead of treating each flight phase separately.

This translates into a requirement for very strong integration of enroute ATC, approach/departure, ground control, and gate management services.

##### Note:

The requirement implies the need for an ATM concept which optimises the choice of take-off and landing runways (and hence the taxi route plus departure and approach phases) in function of the flight's departure and arrival gate. In terms of timing, a seamless transition from taxi to airborne and vice-versa must be possible.

The optimum trajectory can only be calculated by the aircraft operators themselves because it is strongly determined by factors which are only available to the internal organization of the aircraft operators. These factors have a major impact on the operating cost and are primarily derived from the individual operator's policy governing the economics of flight operations. For commercial reasons, aircraft operators cannot provide these factors to an external entity, e.g. EATMS. This is the essential reason why the decision on allocation of a trajectory and eventual changes must remain with the operators.

##### Applies to Service:

ATC (Air Traffic Control)

Relationship#10

Service#17

##### Has Source:

ATM User Requirements Workshop (Brussels, Sep. 1994)

Relationship#18

Meeting#1

##### Is about Theme:

Efficiency

Relationship#16

Theme#50

Integration

Theme#49

Optimisation

Theme#23

Security

Theme#39

##### Is Required by:

Commercial Air Transport (Airlines)

Relationship#30

Stakeholder#20

##### To be Addressed by:

Flight Efficiency

Relationship#29

Strategic Objective#17

Predictability

Strategic Objective#15



4.138 **Need for a gate-to-gate approach to ATM** *Stakeholder Need#98*

**Description:**

Users express a requirement for the management of a flight to be all inclusive, i.e. an ATC service which covers all flight phases, from gate to gate, not only from take-off to landing.

This includes the requirement for taxi and apron management. This taxi management should optimise taxi time and routing versus gate and taxiway occupation. Taxi guidance does not have to be ground based.

**Note:**

This requirement might be shared by some military users, some GA & Aerial Work and some Special User categories.

**Applies to Service:**

ATM (Air Traffic Management)

*Relationship#10*

*Service#14*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Integration

*Relationship#16*

*Theme#49*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Best Use of Available Airport Capacity

*Relationship#29*

*Strategic Objective#10*

4.139 **Need for a two-way dialogue between Airspace Management services and aircraft operators** *Stakeholder Need#452*

**Description:**

In EATMS, a two-way dialogue should be possible between Airspace Management services and the users/operators.

**Applies to Service:**

ASM (Airspace Management)

*Relationship#10*

*Service#15*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Integration

*Relationship#16*

*Theme#49*

**Is Required by:**

Airspace Users

*Relationship#30*

*Stakeholder#3*

**To be Addressed by:**

Fair Access to Airspace

*Relationship#29*

*Strategic Objective#11*

Individual vs Collective Benefit

*Trade-off Topic#3*

#### 4.140 **Need for A-SMGCS at major airports**

*Stakeholder Need#363*

##### **Background:**

Currently, all airports have some form of Surface Guidance and Control System (SMGCS). The simplest form consists of painted guide lines and signs, whereas the most sophisticated systems employ switched taxiway centrelines and stop bars as well as electronic systems to alert incursions in protected areas.

In the present system the current principle of SMGCS depends on "to see and be seen" principle in order to maintain separation between aircraft and/or vehicles in the movement area. This method turns out to be inefficient at airports which handle large volumes of traffic navigating in complex airport layouts.

##### **Description:**

An Advanced SMGCS is necessary to improve taxi efficiency and safety, and to maintain runway capacity in all weather conditions especially in conditions of low visibility, when "to see and be seen" becomes impracticable.

##### **Applies to Service:**

Navigation Services

Surveillance Services

*Relationship#10*

*Service#12*

*Service#13*

##### **Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

##### **Is about Theme:**

Capacity

Efficiency

Low Visibility Conditions

Safety

*Relationship#16*

*Theme#28*

*Theme#50*

*Theme#14*

*Theme#38*

##### **Is Required by:**

Commercial Air Transport (Airlines)

The Airport Community

*Relationship#30*

*Stakeholder#20*

*Stakeholder#4*

##### **To be Addressed by:**

Best Use of Available Airport Capacity

*Relationship#29*

*Strategic Objective#10*

#### 4.141 **Need for A-SMGCS at major airports**

*Stakeholder Need#458*

##### **Description:**

The major airports of the ECAC area need to be equipped with an A-SMGCS as part of EATMS implementation.

##### **Note:**

The difference between the functions of the current and A-SMGCS is that the latter must not only provide more precise guidance for all aircraft and vehicles on the movement area, between the runway(s) and the stands, but also to be able to ensure collision avoidance between all moving aircraft and vehicles in conditions when their speeds prevent such separation being maintained visually.

##### **Applies to Service:**

Navigation Services

Surveillance Services

*Relationship#10*

*Service#12*

*Service#13*

<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Accuracy	<i>Theme#25</i>
Low Visibility Conditions	<i>Theme#14</i>
Safety	<i>Theme#38</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
Commercial Air Transport (Airlines)	<i>Stakeholder#20</i>
The Airport Community	<i>Stakeholder#4</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Best Use of Available Airport Capacity	<i>Strategic Objective#10</i>

4.142      **Need for adequate information security management in the future ATM system**      *Stakeholder Need#384*

**Background:**

A specific problem with increased importance is data security.

**Description:**

Future use of datalink and information exchange between FMS and EATMS and within EATMS requires rigorous security measures to ensure data integrity and prevent unauthorised access to the system, in order to protect flight safety as well as commercial and military interests.

<b>Applies to Service:</b>	<i>Relationship#10</i>
COM (Communication Services)	<i>Service#11</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Safety & Security	<i>Theme#37</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
Airspace Users	<i>Stakeholder#3</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Information Security	<i>Enabling Objective#5</i>

4.143      **Need for adequate security management of accident/incident data**      *Stakeholder Need#430*

**Description:**

Data recorded for accident/incident investigation purposes should be considered confidential and only be made available to those having a legitimate interest in the information (operators and accident / incident investigators).

The data should be secured through coordination between various units; no manipulation (falsification) of data should be possible by anybody.

<b>Applies to Service:</b>	<i>Relationship#10</i>
Accident / Incident Investigation	<i>Service#22</i>

<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Security	<i>Theme#39</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
Accident/Incident Investigation Authorities	<i>Stakeholder#11</i>
Airspace Users	<i>Stakeholder#3</i>
CNS/ATM Service Providers	<i>Stakeholder#6</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Information Security	<i>Enabling Objective#5</i>

4.144 **Need for advanced ATFM services, in particular increased tactical responsiveness on the basis of CDM principles** *Stakeholder Need#57*

**Description:**

It is required that:

- In terms of capacity, the EATMS must have the flexibility to accommodate demand without regulations. It should cope with unforeseen short term changes in demand or partial failures whilst ensuring that the repercussions for all airspace users remain acceptable.
- Operators have maximum freedom including the ability to exchange slots between flights if required.
- There is a direct two-way dialogue within the EATMS (preferably machine \* machine).
- The operational response and subsequent updates from the EATMS slot allocation, must be sufficient to meet the users operational requirements.
- The operator should be free of the limitation of a Traffic Orientation Scheme.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ATFM (Air Traffic Flow Management)	<i>Service#16</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Capacity	<i>Theme#28</i>
Flexibility	<i>Theme#20</i>
Survivability	<i>Theme#40</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
Commercial Air Transport (Airlines)	<i>Stakeholder#20</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Flexibility	<i>Strategic Objective#16</i>

4.145      **Need for advanced Information Management in AIS**      *Stakeholder Need#495*

**Description:**

Aircraft operators want timely, accurate, complete and up-to-date information concerning all components of the Air Navigation System. They expect this information to be available in standardised formats to allow automatic processing, storage and retrieval.

**Note:**

The information should be consistently updated to reflect as close as possible real time information.

**Applies to Service:**

AIS (Aeronautical Information Services)

*Relationship#10*

*Service#5*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Accuracy

*Relationship#16*

*Theme#25*

Standardisation

*Theme#47*

Timeliness

*Theme#31*

**Is Required by:**

Airspace Users

*Relationship#30*

*Stakeholder#3*

**To be Addressed by:**

Information Dissemination Capabilities

*Relationship#29*

*Enabling Objective#3*

4.146      **Need for advanced Information Management in support of MET service provision**      *Stakeholder Need#243*

**Background:**

The following requirements have been defined by the EANPG MET G Project Team for the harmonisation of the MET component for a pre-flight MET/AIS information system in the EUR Region.

**Description:**

- The information must be available in a standardised format to allow automatic processing, storage and retrieval of this information.
- The information should be valid and the latest available.
- The integrity of the information must be ensured.
- The system should cater for retrieval of Met information by interactive means (e.g. telephone/voice, telephone/fax) or by passive means (e.g. request/reply messages via AFTN, SITA) for all aeronautical users.
- The user should be able to retrieve the minimum information on his own in a guided manner (e.g. press button, menu, touch screen) with a minimum of actions. Additionally this should be possible for a user without knowledge of, or experience with, computers.
- Standardised access, request procedures and query language should be used in the EUR region.
- Short response time should be assured.

**Applies to Service:**

MET (Weather Services)

*Relationship#10*

*Service#6*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Integrity

*Relationship#16*

*Theme#21*

Interoperability

*Theme#22*

Standardisation

*Theme#47*

Timeliness

*Theme#31*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

ATM Information Pool Management

*Relationship#29*

Information Dissemination Capabilities

*Enabling Objective#4*

*Enabling Objective#3*

4.147

**Need for better exchange of meteorological research information between all parties**

*Stakeholder Need#447*

**Description:**

According to met. service providers, improved exchange of research information is needed between met. offices, airlines and EATMS.

**Note:**

It was suggested that this might be achieved by creating a library of aviation met. papers or even a set of electronic links via e.g. Internet.

USA research on windshear should be monitored

<b>Applies to Service:</b>	<i>Relationship#10</i>
Coordination with Weather Service Providers	<i>Service#26</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Integration	<i>Theme#49</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
Information Service Providers	<i>Stakeholder#17</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Information Acquisition Capabilities	<i>Enabling Objective#2</i>
Information Dissemination Capabilities	<i>Enabling Objective#3</i>

4.148      **Need for comprehensive, up-to-date ASM information during pre-tactical flight-planning**      *Stakeholder Need#349*

**Description:**

During this phase, there is a requirement:

- For the same needs as defined in strategic flight-planning phase
- For the operator to know at any time the airspace available for planning processes in order to define the best possible route.
- For the user to have the freedom to optimise routes according to the most appropriate criteria for the effective operation of their business.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ASM (Airspace Management)	<i>Service#15</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Integration	<i>Theme#49</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
Airspace Users	<i>Stakeholder#3</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Fair Access to Airspace	<i>Strategic Objective#11</i>
Information Dissemination Capabilities	<i>Enabling Objective#3</i>

4.149      **Need for dynamic management of airspace during tactical flight-planning. Operators must have knowledge of the availability of airspace in real-time**      *Stakeholder Need#350*

**Description:**

During this phase, there is a requirement :

- For dynamic management of airspace. Operators must have knowledge of the availability of airspace in real-time.

- For relevant procedures to take account of aircraft capabilities where there can be a direct contribution to the reduction of congestion.

**Applies to Service:**

ASM (Airspace Management)

*Relationship#10*

*Service#15*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Availability

*Relationship#16*

*Theme#16*

Flexibility

*Theme#20*

Integration

*Theme#49*

**Is Required by:**

Airspace Users

*Relationship#30*

*Stakeholder#3*

**To be Addressed by:**

Fair Access to Airspace

*Relationship#29*

Information Dissemination Capabilities

*Strategic Objective#11*

*Enabling Objective#3*

4.150      **Need for early arrival flexibility**      *Stakeholder Need#88*

**Description:**

Some users express the need for EATMS to accommodate early arrival of flights.

**Note:**

It may mean re-negotiation of agreed 4D profile.

**Applies to Service:**

ATC (Air Traffic Control)

*Relationship#10*

*Service#17*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Flexibility

*Relationship#16*

*Theme#20*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Flexibility

*Relationship#29*

*Strategic Objective#16*



4.151 **Need for equitable airport access and separate ground infrastructure for General Aviation** *Stakeholder Need#270*

**Background:**

A specific interest group of user representing sport aviation and private general aviation expressed concern on the fact that nowadays there are airports which will not permit the access of their type of operation.

It was expressed that the future ATM system must take into consideration this aspect in order to accommodate the type of operation of all the airspace users and their needs.

**Description:**

The following requirements shall be considered:

- Provide airport access to all kinds of airspace users;
- Provide separate areas on the larger aerodrome for commercial air transport and general aviation and aerial work;
- Provide helipads and/or STOL strips on aerodromes for IFR (dedicated Approach/Departure procedures based on GPS) and VFR procedures in order to avoid the use of the main runway for those operations.

**Applies to Service:**

ATC (Air Traffic Control)

*Relationship#10*

*Service#17*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Availability

*Relationship#16*

*Theme#16*

Principles of Treatment

*Theme#2*

**Is Required by:**

GA (General Aviation)

*Relationship#30*

*Stakeholder#21*

**To be Addressed by:**

Fair Access to Airports

*Relationship#29*

*Strategic Objective#12*

4.152 **Need for flexibility in trajectory allocation** *Stakeholder Need#405*

**Description:**

If contracts between EATMS and operators on trajectories are established, EATMS should have the capability of amending them at very short notice - either before take-off or during flight (i.e. 'dynamic flight plans').

**Note:**

All relevant tactical data should be available to operators to enable them to plan their routes efficiently, e.g. if the level they prefer is not being used, they could use it upon request. In this respect, appropriate information management should allow early pilot decisions (for potential deviations).

**Applies to Service:**

ATFM (Air Traffic Flow Management)

*Relationship#10*

*Service#16*

<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Flexibility	<i>Theme#20</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
The GAT (General Air Traffic) Airspace User Community	<i>Stakeholder#13</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Flexibility	<i>Strategic Objective#16</i>
Information Acquisition Capabilities	<i>Enabling Objective#2</i>

4.153      **Need for improved prediction of the onset, cessation and severity of significant weather phenomena at airports**      *Stakeholder Need#446*

**Description:**

Airspace users expressed the following requirements for special met. forecasts at airports:

- improved forecasts relating to final approach and take-off (e.g. wind at take-off and touchdown, including gusts, windshear and low level inversion);
- improved prediction of the onset, cessation and severity of significant weather phenomena at airports, e.g. heavy showers, snow and freezing rain.
- improved prediction of RVR under conditions of patchy fog.

<b>Applies to Service:</b>	<i>Relationship#10</i>
MET (Weather Services)	<i>Service#6</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Meteorological Conditions	<i>Theme#12</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
Commercial Air Transport (Airlines)	<i>Stakeholder#20</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
ATM Information Pool Management	<i>Enabling Objective#4</i>
Responsiveness to Information Needs	<i>Enabling Objective#1</i>

4.154

**Need for information security management as an essential element in the protection of flight safety, commercial and military interests (confidentiality, consistency, integrity, etc.)***Stakeholder Need#385***Background:**

The significantly increased use of ground-ground and air-ground data communications between EATMS and its users requires rigorous security measures to prevent unauthorized access to communication systems and the data exchanged via the communication networks and stored in data banks. Particularly, adequate security measures are required to prevent sabotage e.g. by unauthorized changes of navigation data or unauthorized transmission of data link clearances etc. Furthermore, unauthorized access to commercially sensitive data, e.g. trajectories or flight plans calculated by the users, is required in order to prevent industrial espionage by competitors.

**Description:**

Data security is needed to protect flight safety, plus commercial and military interests (confidentiality, consistency, integrity, etc.). Data security is to be applied during ground/ground and air/ground exchanges and to stored data. Data to be protected: data used during flight planning, in-flight (ATC), and post-flight (recorded data).

**Note:**

Security is a very complex issue, requiring separate requirements capture and analysis.

An initial analysis is provided below.

**THREAT MANAGEMENT (SECURITY) REQUIREMENTS:**

System attacks may be harmful to

- a. air traffic safety
- b. commercial interests
- c. User confidence in the system
- d. public confidence in the system

and may lead to other threats like blackmail, etc.

This section specifies requirements related to the assessment and control of threats, i.e. risks of system attack.

Requirements can be structured around the types of electronic attacks:

- Passive Attacks

The European ATM System shall protect its information against "eavesdropping" in accordance with defined performance levels.

- Active Attacks

The European ATM System shall protect its information against malicious

- a. deletion of data
- b. data corruption
- c. data alteration
- d. data substitution
- e. data insertion
- f. message replay

in accordance with defined performance levels.

There are several types of Attackers.

- The European ATM System (Self Inflicted Attacks)

The European ATM System shall protect its information against self inflicted attacks in accordance with defined performance levels.

- Users and Service Providers (Commercial Attacks)

The European ATM System shall protect its information against attacks from its Users and Service Providers (commercial attacks) in accordance with defined performance levels.

- Third Parties (Attacks from Terrorists, Hackers, Virus Constructors e.a.)

The European ATM System shall protect its information against attacks by third parties (terrorists, hackers, virus constructors e.a.) in accordance with defined performance

levels.

Hazard Analysis:

A hazard analysis shall identify the impact of events within the European ATM System, irrespective of how these events were achieved.

Threat Analysis:

A threat analysis shall identify possible unauthorised means of entry into the European ATM System, and the potential for subsequent alteration, deletion or substitution of information.

The threat analysis shall identify

- a. who might try to gain entry,
- b. how they might gain entry, and
- c. what they may be able to do once in.

The Balance between Security and Useability:

Mechanisms and strategies shall be put in place, to identify and maintain a satisfactory balance between security and useability of the European ATM System.

**Applies to Service:**

COM (Communication Services)

*Relationship#10*

*Service#11*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Security

*Relationship#16*

*Theme#39*

**To be Addressed by:**

Information Security

*Relationship#29*

*Enabling Objective#5*

#### 4.155 **Need for milestones which bring clear benefits**

*Stakeholder Need#408*

**Description:**

Milestones need to be identified that clearly bring benefits at each stage.

**Note:**

As part of that process, cost benefit analyses need to be conducted at regular intervals to indicate what benefits will (should) be available at what times.

**Applies to Service:**

Air Navigation Systems Planning & Development

*Relationship#10*

*Service#2*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Evolvability

*Relationship#16*

*Theme#19*

**Is Required by:**

The Aviation Industry

*Relationship#30*

*Stakeholder#1*

**To be Addressed by:**

Ensure Cost Effective System Inter-Operability and Evolution

*Relationship#29*

*Strategic Objective#23*

**4.156      Need for open access to information to increase airspace capacity for VFR traffic**      *Stakeholder Need#367*

**Background:**

The basic political requirement is the uniform trans-European provision of adequate air traffic services with common practicable rules of application in accordance with user needs.

The huge investment into ground-based air traffic control services may provide a certain increase in airspace capacity to IFR traffic. However the majority of air traffic makes little or no use of ATC services (i.e. these users conduct autonomous aircraft operations).

**Description:**

Airspace capacity should also be sufficient for those users conducting autonomous aircraft operations (e.g. VFR traffic).

This implies open access for VFR traffic to:

- Met info on the ground and in the air
- Regulatory info on available airspace
- Air traffic density forecasts

when and where required.

**Note:**

This access to information should be available in a cost-effective manner.

**Applies to Service:**

AIS, MET & Flight Plan Processing Services

*Relationship#10*

*Service#4*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Integration

*Relationship#16*

*Theme#49*

**Is Required by:**

GA (General Aviation)

*Relationship#30*

*Stakeholder#21*

**To be Addressed by:**

Information Dissemination Capabilities

Responsiveness to Information Needs

*Relationship#29*

*Enabling Objective#3*

*Enabling Objective#1*

4.157 **Need for optimised departure/arrival sequencing and taxi routing** *Stakeholder Need#364*

**Background:**

Maximising the effective airport capacity was and still is relying on the individual skills of air traffic controllers.

The current research effort concentrates on improving methods and tools to assist the controllers to manage the air traffic in the terminal areas. These studies however must be extended to the surface movement part and take into consideration the way the traffic evolves in the manoeuvring area, the turn around times and the declared capacity of the airport.

**Description:**

Optimise departure/arrival sequencing and taxi routing.

**Applies to Service:**

ATC (Air Traffic Control)

*Relationship#10*

*Service#17*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Capacity

*Relationship#16*

*Theme#28*

Optimisation

*Theme#23*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Best Use of Available Airport Capacity

*Relationship#29*

*Strategic Objective#10*

4.158 **Need for proper user guidance, public funding and professional implementation management for accelerated standardization and certification of available CNS technologies** *Stakeholder Need#460*

**Background:**

When the FANS Committee finalized its CNS definition task (1988) it could not assess the rapid developments and possibilities GNSS is offering today. One can for example mention the cellular CNS which was derived from the FANS- GNSS concept by the Swedish government. Due to continued development, such an advanced technology may (in the long run) turn out to have better functionality and be more cost effective than say, TCAS and Mode S.

The user community should not be deprived from the benefits of existing advanced CNS technologies due to a lack of standardization or certification.

The accelerated standardization and certification of available technologies and interfaces is essential to bring their benefits to the European markets in time and to safeguard the economic benefits of these technologies which have mostly been funded by taxpayers through the various defense budgets.

**Description:**

Proper user guidance, public funding and professional implementation management is needed to enable the accelerated standardization and certification of available advanced CNS technologies.

**Applies to Service:**

Air Navigation Systems Planning & Development

*Relationship#10*

*Service#2*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Standardisation & Certification

*Relationship#16*

*Theme#43*

**Is Required by:**

The Aviation Industry

*Relationship#30*

*Stakeholder#1*

**To be Addressed by:**

Ensure the Availability of Common Standards

*Relationship#29*

*Strategic Objective#22*

4.159

**Need for recording and distribution of data for incident and accident investigation purposes**

*Stakeholder Need#389*

**Description:**

For incident and accident investigation purposes EATMS must provide mechanisms to record and make available any data that is necessary to reconstruct the air traffic situation and the sequence of events, based on a common time-reference. The information is to be considered confidential, and reports are to be distributed to authorised parties only.

**Applies to Service:**

Accident / Incident Investigation

*Relationship#10*

*Service#22*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Integration

*Relationship#16*

*Theme#49*

**Is Required by:**

Accident/Incident Investigation Authorities

*Relationship#30*

*Stakeholder#11*

Airspace Users

*Stakeholder#3*

CNS/ATM Service Providers

*Stakeholder#6*

**To be Addressed by:**

ATM Information Pool Management

*Relationship#29*

*Enabling Objective#4*

Information Acquisition Capabilities

*Enabling Objective#2*

Information Dissemination Capabilities

*Enabling Objective#3*

Information Security

*Enabling Objective#5*



4.160      **Need for recording and distribution of data for incident and accident investigation purposes**      *Stakeholder Need#429*

**Description:**

Certain data need to be recorded and kept for a period specified by ICAO and States. Data to be recorded should include: the real air situation, the controller displays at the time of incident (for re-construction), all voice and data link exchanges. The users identified the need for a common time stamp on data recorded at different locations (e.g. use of the common time reference available from GPS).

EATMS should "report" all incidents that are sufficiently serious for later investigation by a suitable body.

**Applies to Service:**

Accident / Incident Investigation

*Relationship#10*

*Service#22*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Integration

*Relationship#16*

*Theme#49*

**Is Required by:**

Accident/Incident Investigation Authorities

*Relationship#30*

*Stakeholder#11*

Airspace Users

*Stakeholder#3*

CNS/ATM Service Providers

*Stakeholder#6*

**To be Addressed by:**

ATM Information Pool Management

*Relationship#29*

*Enabling Objective#4*

Information Acquisition Capabilities

*Enabling Objective#2*

Responsiveness to Information Needs

*Enabling Objective#1*

4.161      **Need for responsibility and liability regarding information quality assurance in AIS**      *Stakeholder Need#81*

**Description:**

Users want a body or somebody taking responsibility for common, correct and complete information on airports and navigation aids (e.g. AIS) within the ECAC area. This requirement also applies to MET and aircraft position data.

**Note:**

The user is not advocating a centralised data base but is chiefly concerned with the availability of correct data and the consistency between the ground and air (e.g. FMS) components of the system.

**Applies to Service:**

AIS, MET & Flight Plan Processing Services

*Relationship#10*

*Service#4*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Liability and Responsibility

*Relationship#16*

*Theme#11*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**  
ATM Information Pool Management

*Relationship#29*  
*Enabling Objective#4*

#### 4.162 **Need for standardised formatting of weather data**

*Stakeholder Need#185*

**Description:**

Data derived from different sources should have commonality of coding e.g. WMO standard codes such as BUFR. In the case of certain met. data users, there should be a standard code

**Applies to Service:**

Coordination with Weather Service Providers

*Relationship#10*

*Service#26*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Standardisation

*Relationship#16*

*Theme#47*

**Is Required by:**

Information Service Providers

*Relationship#30*

*Stakeholder#17*

**To be Addressed by:**

ATM Information Pool Management

*Relationship#29*

*Enabling Objective#4*

#### 4.163 **Need for suitable assessment and monitoring of the flight safety level, to be based on the existence and performance of the various 'collision risk management' mechanisms**

*Stakeholder Need#465*

**Background:**

The general requirement is to maintain and where feasible improve the current level of safety. Currently, there does not exist a statistically defined 'Target Level of Safety' (TLS) for European airspace as it does for the North Atlantic MNPS Airspace. Due to the complexity of the traffic structure in Europe, it is not deemed possible to introduce such a statistically defined TLS for EATMS. Nevertheless:

**Description:**

Safety considerations are paramount within the development and operation of EATMS and suitable safety assessment and monitoring mechanisms are required.

**Note:**

The assessment of the flight safety level must reflect changes in the EATMS environment, e.g. the capabilities of aircraft in terms of navigation accuracy and possible airborne collision avoidance capabilities, ATC performance, protection against human blunders etc. Today's criteria for the definition and identification of incidents (e.g. airmiss) may not be suitable in the EATMS environment. New criteria will need to be established. In addition, the assessment of the flight safety level cannot only be based only posterior on incident/accident statistics but also needs to be based on the existence and performance of the various 'collision risk management' mechanisms.

**Applies to Service:**

Quality of Service (Performance) Monitoring

*Relationship#10*

*Service#21*

<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Safety	<i>Theme#38</i>
Tolerance against Human Errors	<i>Theme#7</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
The GAT (General Air Traffic) Airspace User Community	<i>Stakeholder#13</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Improving the Evaluation of the Actual Safety Levels Within Europe	<i>Strategic Objective#4</i>

4.164      **Need for the application of common Cost/Benefit Analysis principles throughout the ECAC area**      *Stakeholder Need#502*

**Description:**

EATMS should be developed using commonly (i.e. between provider organizations and users) accepted principles for Cost Benefit Analysis (CBA) for the entire ECAC area as a whole. CBA must be conducted in close cooperation with providers and users.

However it may be unrealistic to undertake cost benefit analysis throughout the ECAC area, given the lack of relevant data in some countries. Cost benefit analysis should only be undertaken as far as practicable throughout the ECAC area.

<b>Applies to Service:</b>	<i>Relationship#10</i>
Air Navigation Systems Planning & Development	<i>Service#2</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Quality Assurance	<i>Theme#42</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
CNS/ATM Service Providers	<i>Stakeholder#6</i>
The GAT (General Air Traffic) Airspace User Community	<i>Stakeholder#13</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
General Economic Objective: Cost Reduction	<i>Strategic Objective#6</i>

4.165      **Need for the uniform application of airspace classification throughout Europe**      *Stakeholder Need#250*

**Description:**

It is a user requirement that Europe reaches a high degree of harmonisation and a uniform application of airspace rules.

**Note:**

Europe has adopted the ICAO airspace classification. The actual implementation of the airspace structure, however, shows a high degree of national variations, either with the use of classes or in the rules of application. As examples, class E means 5 km visibility whereas the national variant in Germany calls for 8 km; class A means "no VFR permitted" but UK, France and Netherlands allow VFR flights in such airspace.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ASM (Airspace Management)	<i>Service#15</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Interoperability	<i>Theme#22</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
The GAT (General Air Traffic) Airspace User Community	<i>Stakeholder#13</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Fair Access to Airspace	<i>Strategic Objective#11</i>
General Uniformity Objective	<i>Strategic Objective#21</i>

#### 4.166 **Need for timely availability of data exchange standards** *Stakeholder Need#501*

##### **Description:**

The users emphasised that data exchange standards must be defined early in the process to allow proper system development.

<b>Applies to Service:</b>	<i>Relationship#10</i>
Air Navigation Systems Planning & Development	<i>Service#2</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Evolvability	<i>Theme#19</i>
Standardisation	<i>Theme#47</i>
Timeliness	<i>Theme#31</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
The Aviation Industry	<i>Stakeholder#1</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Ensure Cost Effective System Inter-Operability and Evolution	<i>Strategic Objective#23</i>
Ensure the Availability of Common Standards	<i>Strategic Objective#22</i>

#### 4.167 **Need for User-segmented Cost/Benefit analysis, because the 'average' user does not exist and hence overall C/B ratios are not relevant** *Stakeholder Need#410*

##### **Description:**

C/B analysis should not just be done for the whole user / provider community, without detail, because the 'average' user does not exist. What may be a high C/B ratio for one user group, may turn out to have a very low C/B ratio for other users.

##### **Note:**

In this context, the users let the EATMS designers know that they do their own C/B analysis before committing themselves to investments.

<b>Applies to Service:</b>	<i>Relationship#10</i>
Air Navigation Systems Planning & Development	<i>Service#2</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Principles of Treatment	<i>Theme#2</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
The GAT (General Air Traffic) Airspace User Community	<i>Stakeholder#13</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Individual vs Collective Benefit	<i>Trade-off Topic#3</i>
Mandating vs Incentive	<i>Trade-off Topic#4</i>

#### 4.168 **Need to accommodate aerial work activities in all airspace** *Stakeholder Need#267*

##### **Description:**

Consideration must be given to aerial work activities carried out by balloons, ultralights and light aeroplanes in accordance with the general requirements for sporting and recreational aviation.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ATS (Air Traffic Services)	<i>Service#3</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Principles of Treatment	<i>Theme#2</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
GA (General Aviation)	<i>Stakeholder#21</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Fair Access to Airports	<i>Strategic Objective#12</i>
Fair Access to Airspace	<i>Strategic Objective#11</i>
Fair Access to Required ATM Services	<i>Strategic Objective#13</i>

#### 4.169 **Need to apply CDM and Information Management principles to improve airport/ATM integration** *Stakeholder Need#147*

##### **Background:**

Currently, the normal flow of data used to communicate airport information has different origins. That diversity of information uses different formats and networks ( e.g. SITA, CIDIN, etc.), which are not compatible and creates an amount of additional effort, with the corresponding delays in the service provisions to the users. In the airport operators' point of view, the development of a future ATM system must take into consideration such kind of constraints in the present system as limiting factors to the provision of high quality services.

**Description:**

The design, development and implementation of EATMS must consider the following requirement:

- Establishment of procedures and standards which permits the exchange of data between EATMS and Airports, participation on ATN and between airport and airborne systems with EATMS.

**Applies to Service:**

Coordination with Aerodrome Operators

*Relationship#10*

*Service#25*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Integration

*Relationship#16*

*Theme#49*

**Is Required by:**

The Airport Community

*Relationship#30*

*Stakeholder#4*

**To be Addressed by:**

Communication Capabilities

*Relationship#29*

Information Acquisition Capabilities

*Enabling Objective#7*

Information Dissemination Capabilities

*Enabling Objective#2*

*Enabling Objective#3*

4.170 **Need to include Met. information into tactical flow management decision making**

*Stakeholder Need#297*

**Description:**

Significant en-route weather phenomena, e.g. CAT, widespread embedded Cb etc., should be taken into account for ATM route planning on the day.

**Applies to Service:**

ATFM (Air Traffic Flow Management)

*Relationship#10*

*Service#16*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Integration

*Relationship#16*

*Theme#49*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Information Dissemination Capabilities

*Relationship#29*

Responsiveness to Information Needs

*Enabling Objective#3*

*Enabling Objective#1*

4.171 **New standardised ATM procedures for a variety of runway configurations should improve the fluidity of traffic with different capabilities at and around airports** *Stakeholder Need#362*

**Background:**

The users expressed the inadequacy of some of the current ATM procedures used in the airports in terms of adaptation to the operation of different type of aircraft with different capabilities.

**Description:**

New standardised ATM procedures are needed, based on ICAO provisions, adapted to the different performance and equipment of the different types of aircraft, taking into consideration different runway configurations (e.g. intersecting runway operations).

**Note:**

This is considered to be a contributing factor in improving the fluidity of the arriving and departing traffic.

**Applies to Service:**

ATC (Air Traffic Control)

*Relationship#10*

*Service#17*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Standardisation

*Relationship#16*

*Theme#47*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Best Use of Available Airport Capacity

*Relationship#29*

*Strategic Objective#10*

4.172 **Non-discriminatory access to non-ECAC operators, provided mandatory equipment/avionics capability standards are complied with** *Stakeholder Need#400*

**Description:**

EATMS must enable non-discriminatory access to non-ECAC operators, provided mandatory equipment/avionics capability standards are complied with.

**Note:**

For the establishment of mandatory avionics capability standards, compliance with international standards laid down by ICAO is essential.

Requirements imposed by EATMS on aircraft operators must not discriminate against non-ECAC operators and must be in line with the principles of the Chicago convention and GATT (General Agreement on Tariffs and Trade) in order not to build artificial barriers for air transport and trade.

**Applies to Service:**

ATM (Air Traffic Management)

*Relationship#10*

*Service#14*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*



<b>Is about Theme:</b>	<i>Relationship#16</i>
Principles of Treatment	<i>Theme#2</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
The GAT (General Air Traffic) Airspace User Community	<i>Stakeholder#13</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Fair Access to Airports	<i>Strategic Objective#12</i>
Fair Access to Airspace	<i>Strategic Objective#11</i>
Fair Access to Required ATM Services	<i>Strategic Objective#13</i>
Individual vs Collective Benefit	<i>Trade-off Topic#3</i>

**4.173**      **Nowcasts should be issued each 15-30 minutes**      *Stakeholder Need#336*

**Description:**

Nowcasts should be issued each 15-30 minutes.

<b>Applies to Service:</b>	<i>Relationship#10</i>
FIS (Flight Information Services)	<i>Service#8</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Meteorological Conditions	<i>Theme#12</i>

<b>Is Required by:</b>	<i>Relationship#30</i>
The GAT (General Air Traffic) Airspace User Community	<i>Stakeholder#13</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Information Acquisition Capabilities	<i>Enabling Objective#2</i>

**4.174**      **Of all air sports, glider operations have the most extensive airspace requirements. The needs are quite different for altitude flights and cross-country gliding**      *Stakeholder Need#480*

**Description:**

Gliding hopes to see a maximum of airspace classified as E, F or G, and requests a maximum flexibility in airspace use, especially between the civil and military agencies.

**Note:**

For altitude flights, gliding needs airspace up to FL 200 or more in specific, relatively limited areas and during specific (daylight) hours.

Cross-country gliding on the other hand requires a large horizontal extent of airspace, since it consists of open and closed circuit flights which cover distances of 300 - 500 km, and in some cases 1000 km.

Cross-country gliding is unable to traverse under a controlled airspace base below 3000 ft AGL and prefers to fly between 3000 and 6000 ft or higher. Due to the need to fly from thermal to thermal, it is almost impossible for gliding to comply with ground-based ATC instructions regarding maintaining a given altitude or predictable heading.



<b>Applies to Service:</b>	<i>Relationship#10</i>
ASM (Airspace Management)	<i>Service#15</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Accessibility (in space)	<i>Theme#17</i>
Flexibility	<i>Theme#20</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
GA (General Aviation)	<i>Stakeholder#21</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Fair Access to Airspace	<i>Strategic Objective#11</i>

#### 4.175 **Operating in the future ATM environment should be possible without special skills and ratings** *Stakeholder Need#319*

**Description:**  
No special skills or ratings must be required to operate in the EATMS environment

<b>Applies to Service:</b>	<i>Relationship#10</i>
CNS/ATM Services	<i>Service#9</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Certification of Human Operators	<i>Theme#45</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
Airspace Users	<i>Stakeholder#3</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Human Involvement and Commitment	<i>Strategic Objective#24</i>

#### 4.176 **Operators require special VFR minima for helicopters and VTOL aircraft, plus the possibility to switch back and forth between VFR and IFR as required** *Stakeholder Need#419*

**Description:**  
Operators require special VFR minima for helicopters and VTOL aircraft, plus the possibility to switch back and forth between VFR and IFR as required.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ATC (Air Traffic Control)	<i>Service#17</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Efficiency	<i>Theme#50</i>
Flexibility	<i>Theme#20</i>
<b>Is Required by:</b>	<i>Relationship#30</i>

GA (General Aviation)  
**To be Addressed by:**  
Individual vs Collective Benefit

Stakeholder#21  
Relationship#29  
Trade-off Topic#3

**4.177 Parachuting needs airspace up to FL 120, but only requires this in a limited area and for a short period of time**

Stakeholder Need#483

**Description:**

Parachuting needs airspace up to FL 120, but only requires this in a limited area and for a short period of time, which can be coordinated with ATC services, if necessary.

**Applies to Service:**

ASM (Airspace Management)

Relationship#10

Service#15

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

Relationship#18

Meeting#1

**Is about Theme:**

Accessibility (in space)

Relationship#16

Theme#17

Availability (in time)

Theme#18

**Is Required by:**

GA (General Aviation)

Relationship#30

Stakeholder#21

**To be Addressed by:**

Fair Access to Airspace

Relationship#29

Strategic Objective#11

**4.178 Pilots and controllers should have, at all times, precise knowledge of the nature, probability and extent of possible contingencies, and of the latest applicable contingency plans**

Stakeholder Need#312

**Background:**

Due to the higher dependency on FMS/ATC software and its closed loops, the system needs to perform more rigorous contingency planning.

**Description:**

EATMS is expected to enable the parties involved (pilots, controllers) to have, at all times, precise knowledge of the nature, probability and extent of possible contingencies, and of the latest applicable contingency plans.

**Note:**

This reduced uncertainty should lead to optimum contingency planning, i.e. plans which are sufficient but do not exceed what is really needed.

**Applies to Service:**

ATS (Air Traffic Services)

Relationship#10

Service#3

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

Relationship#18

Meeting#1

**Is about Theme:**

Situational Awareness

Relationship#16

Theme#6

Survivability

Theme#40

**Is Required by:**

Relationship#30

Commercial Air Transport (Airlines)

Stakeholder#20

**To be Addressed by:**

Relationship#29

Information Dissemination Capabilities

Enabling Objective#3

Responsiveness to Information Needs

Enabling Objective#1

**4.179 Pilots want access to the right traffic information (on-board) in order to take emergency actions and avoid other traffic**

Stakeholder Need#508

**Description:**

The pilot needs access to the right traffic information (on-board) in order to take emergency actions and avoid other traffic.

**Note:**

Users see a benefit to TCAS/ACAS type of equipment or collision avoidance systems (CAS's) based on a cooperative approach as a safety net.

TCAS/ACAS are essentially airborne.

New CAS's (cooperative) can be envisaged taking advantage of any or more:

- GNSS positioning;
- broadcast of position information via a datalink;
- air/ground datalink that ensures consistency of information.

**Applies to Service:**

Relationship#10

Navigation Services

Service#12

Surveillance Services

Service#13

**Has Source:**

Relationship#18

ATM User Requirements Workshop (Brussels, Sep. 1994)

Meeting#1

**Is about Theme:**

Relationship#16

Safety

Theme#38

Situational Awareness

Theme#6

**Is Required by:**

Relationship#30

Commercial Air Transport (Airlines)

Stakeholder#20

**To be Addressed by:**

Relationship#29

Responsiveness to Information Needs

Enabling Objective#1

**4.180 Pilots want to have access to a human being on the ground (controller), particularly in case of emergency**

Stakeholder Need#426

**Description:**

In certain circumstances (emergencies, contingencies), at any time, the pilot wants to have access to a human being on the ground (controller) for handling crises and conflicts.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ATC (Air Traffic Control)	<i>Service#17</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Safety	<i>Theme#38</i>
Situational Awareness	<i>Theme#6</i>
Survivability	<i>Theme#40</i>
Workload	<i>Theme#8</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
The GAT (General Air Traffic) Airspace User Community	<i>Stakeholder#13</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Human Involvement and Commitment	<i>Strategic Objective#24</i>

4.181 **Pre-flight information should be easily accessible to all airspace users, in ways which are tailored to the needs of each specific user group** *Stakeholder Need#415*

**Description:**

All relevant pre-flight information should be distributed, in standardised formats that are easily understood/processed, in an unambiguous and timely manner.

All users should have access to pre-flight information, which is tailored to meet the needs of specific users groups. The user will decide what and when is required (including continuous up-date of data).

<b>Applies to Service:</b>	<i>Relationship#10</i>
AIS, MET & Flight Plan Processing Services	<i>Service#4</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Integration	<i>Theme#49</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
Airspace Users	<i>Stakeholder#3</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Information Dissemination Capabilities	<i>Enabling Objective#3</i>

4.182 **Pre-operational field trials should be encouraged on local, national and regional levels to the benefit of the future European ATM network** *Stakeholder Need#241*

**Background:**

Pre-operational field trials are likely to take place firstly on a rather limited local scale.

**Description:**

Pre-operational field trials should be encouraged on local, national and regional levels to the benefit of EATMS.

All pre-operational field trials should be coordinated with EATMS development.

**Applies to Service:**

Air Navigation Systems Planning & Development

*Relationship#10*

*Service#2*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Evolvability

*Relationship#16*

*Theme#19*

**Is Required by:**

The Aviation Industry

*Relationship#30*

*Stakeholder#1*

**To be Addressed by:**

Ensure Cost Effective System Inter-Operability and Evolution

*Relationship#29*

*Strategic Objective#23*

4.183

**R & D activities needed to support the Strategy have to be identified and prioritised**

*Stakeholder Need#527*

**Applies to Service:**

Air Navigation Systems Planning & Development

*Relationship#10*

*Service#2*

**Has Source:**

ATM 2000+ Workshop (Luxemburg, Feb. 1998)

*Relationship#18*

*Meeting#2*

**Is about Theme:**

Quality Assurance

*Relationship#16*

*Theme#42*

**Is Required by:**

The Aviation Industry

*Relationship#30*

*Stakeholder#1*

**To be Addressed by:**

The ATM 2000+ Strategy Management Process

*Relationship#29*

*Process#1*

4.184

**Rather than ATM based on strict segregation of airspace, users wish an operational concept in which shared use of all airspace for different user groups is safely possible**

*Stakeholder Need#304*

**Background:**

Users reaffirmed their position regarding airspace segregation:

**Description:**

Rather than an EATMS based on strict segregation of airspace, users wish a system and an operational concept in which shared use of all airspace for different user groups is safely possible.

**Applies to Service:**

ASM (Airspace Management)

*Relationship#10*

*Service#15*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

Relationship#18

Meeting#1

**Is about Theme:**

Principles of Treatment

Relationship#16

Theme#2

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

Relationship#30

Stakeholder#13

The UAV Operator Community (civil and military)

Stakeholder#23

**To be Addressed by:**

Fair Access to Airspace

Relationship#29

Strategic Objective#11

Individual vs Collective Benefit

Trade-off Topic#3

4.185

**Regardless of the existence of slot allocation schemes, users wish to have a free choice between departure punctuality and departure flexibility**

Stakeholder Need#475

**Background:**

Slot allocation schemes serve to prevent the number of scheduled departures and arrivals from exceeding the declared airport capacity. This is a scheduling issue.

From an operational point of view, some operators are more willing than others to commit themselves to strict departure slots.

For example: for feeder flights, punctuality is important; for connecting flights, flexibility is important.

Due to such flexibility requirements, there may be differences between the operators' actual times of departure / arrival and the slot time. Today, if an operator does not meet his slot time, he is often to a more or lesser degree penalized by ATC (e.g. subject to ATC delays).

**Description:**

Regardless of the existence of slot allocation schemes, users wish to have a free choice between departure punctuality and departure flexibility.

**Note:**

This requirement is about the ability of the user to fulfill his side of the contract (his readiness to meet the scheduled departure / arrival times) and not about the ability of ATC to meet their side of the contract (to avoid ATC related delays).

**Applies to Service:**

ATFM (Air Traffic Flow Management)

Relationship#10

Service#16

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

Relationship#18

Meeting#1

**Is about Theme:**

Flexibility

Relationship#16

Theme#20

**Is Required by:**

Commercial Air Transport (Airlines)

Relationship#30

Stakeholder#20

**To be Addressed by:**

Flexibility

Relationship#29

Strategic Objective#16

- 4.186 **Safety is paramount and the need to improve safety levels in the face of increasing demand must be emphasised** *Stakeholder Need#514*
- Applies to Service:** *Relationship#10*  
Air Navigation Services *Service#1*
- Has Source:** *Relationship#18*  
ATM 2000+ Workshop (Luxemburg, Feb. 1998) *Meeting#2*
- Is about Theme:** *Relationship#16*  
Safety *Theme#38*
- Is Required by:** *Relationship#30*  
The Aviation Industry *Stakeholder#1*
- To be Addressed by:** *Relationship#29*  
General Safety Objective *Strategic Objective#1*
- 4.187 **Service provision should be personalised to the needs of each individual flight to a very high degree** *Stakeholder Need#303*
- Background:**  
Users will be able and willing to make detailed information available to the ground system regarding their intentions, desired flexibility, climb, manoeuvrability, noise characteristics, etc. In return they expect a highly predictable flight environment (AIS, MET, traffic information) which enables them to optimise their trajectory in four dimensions: route, altitude, speed and time.
- Description:**  
Service provision should be personalised to the needs of each individual flight to a very high degree.
- Note:**  
In addition, they wish to get the information about disruptive events as quickly as possible.
- Applies to Service:** *Relationship#10*  
ATS (Air Traffic Services) *Service#3*
- Has Source:** *Relationship#18*  
ATM User Requirements Workshop (Brussels, Sep. 1994) *Meeting#1*
- Is about Theme:** *Relationship#16*  
Flexibility *Theme#20*  
Optimisation *Theme#23*
- Is Required by:** *Relationship#30*  
Commercial Air Transport (Airlines) *Stakeholder#20*
- To be Addressed by:** *Relationship#29*  
Information Dissemination Capabilities *Enabling Objective#3*

- 4.188 **Short haul and regional flights should wait on the ground in case of weather contingencies and be treated fairly with respect to arriving long haul aircraft while they have not taken off yet** *Stakeholder Need#361*

**Description:**

For the operation of short haul and regional flights, the operators express the need for EATMS to make them wait on the ground rather than in the air in case of weather contingencies; to be treated fairly with respect to arriving long haul aircraft in the air while they have not taken off yet.

Once given the takeoff clearance, they should be able to fly directly to the destination.

**Applies to Service:**

ATFM (Air Traffic Flow Management)

*Relationship#10*

*Service#16*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Delay

*Relationship#16*

*Theme#32*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Individual vs Collective Benefit

*Relationship#29*

*Trade-off Topic#3*

- 4.189 **Since weather data and forecasts are perishable, their creation and distribution have timeliness requirements** *Stakeholder Need#186*

**Description:**

Since data and forecasts are perishable, their creation and distribution have timeliness requirements.

**Applies to Service:**

Coordination with Weather Service Providers

*Relationship#10*

*Service#26*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Integration

*Relationship#16*

*Theme#49*

**Is Required by:**

Information Service Providers

*Relationship#30*

*Stakeholder#17*

**To be Addressed by:**

Information Acquisition Capabilities

*Relationship#29*

*Enabling Objective#2*

Information Dissemination Capabilities

*Enabling Objective#3*



4.190      **Situational awareness without information overload is essential to flight safety**      *Stakeholder Need#467*

**Background:**

Situational awareness was cited as essential to flight safety:

**Description:**

EATMS must provide adequate information to ensure that the pilot is never in doubt about the status of the system or the flight environment; however care must be taken not to create a new flight safety risk, caused by overloading the human with information.

**Applies to Service:**

CNS/ATM Services

*Relationship#10*

*Service#9*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Safety

*Relationship#16*

*Theme#38*

Situational Awareness

*Theme#6*

Workload

*Theme#8*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Information Dissemination Capabilities

*Relationship#29*

*Enabling Objective#3*

4.191      **Some GA and Aerial Work users want to be able to fly without a flight plan for short haul trips (200-300 nm) between cities and for VFR flights which do not require clearances**      *Stakeholder Need#261*

**Description:**

A need is expressed by some GA and Aerial Work users to be able to fly without a flight plan for short haul trips (200-300 nm) between cities and for VFR flights which do not require clearances.

**Note:**

This requirement deals with VFR operations in uncontrolled airspace, and is therefore not in conflict with another requirement expressed by IFR operators who want every use of controlled airspace to be known by the EATMS system.

**Applies to Service:**

Flight Plan Processing Services

*Relationship#10*

*Service#7*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:**

GA (General Aviation)

*Relationship#30*

*Stakeholder#21*

**To be Addressed by:** *Relationship#29*  
Information Acquisition Capabilities *Enabling Objective#2*

**4.192 Some pilots want the responsibility for separation during normal flight conditions to stay with the ground system** *Stakeholder Need#354*

**Description:**

The pilot does not want to be responsible for separation between aircraft as EATMS should be providing the conflict free 4D trajectory as a "contract".

**Applies to Service:** *Relationship#10*  
ATC (Air Traffic Control) *Service#17*  
**Has Source:** *Relationship#18*  
ATM User Requirements Workshop (Brussels, Sep. 1994) *Meeting#1*  
**Is about Theme:** *Relationship#16*  
Liability and Responsibility *Theme#11*

**Is Required by:** *Relationship#30*  
Commercial Air Transport (Airlines) *Stakeholder#20*  
**To be Addressed by:** *Relationship#29*  
Fair Access to Required ATM Services *Strategic Objective#13*

**4.193 Some VFR users see benefits in having a traffic/AIS/MET situation display for the airspace around the aircraft's position** *Stakeholder Need#356*

**Background:**

For VFR flights, some users see great benefits in autonomous aircraft operation and traffic awareness information capability.

**Description:**

That VFR user wants a traffic situation display for a given volume around the aircraft's position, and a communication system offering air traffic intercommunications enabling:

- automatic data exchange within a given part of the airspace (position data, MET data, clearances, call signs)
- voice communications to specific or all aircraft of the given airspace.

**Applies to Service:** *Relationship#10*  
CNS services *Service#10*  
**Has Source:** *Relationship#18*  
ATM User Requirements Workshop (Brussels, Sep. 1994) *Meeting#1*  
**Is about Theme:** *Relationship#16*  
Availability *Theme#16*  
Situational Awareness *Theme#6*

**Is Required by:** *Relationship#30*  
The GAT (General Air Traffic) Airspace User Community *Stakeholder#13*  
**To be Addressed by:** *Relationship#29*

Information Dissemination Capabilities

Enabling Objective#3

4.194 **Sporting and recreational aviation has a need for special customised weather forecasts** *Stakeholder Need#279*

**Description:**

Special customized forecasts are needed for sporting purposes:

- forecasts to enable safe cross-country flying for balloons, gliders, micro-lights etc.
- wind forecasts for para dropping
- forecasting of mountain wave conditions for altitude flights
- daily forecasts for competitions

**Applies to Service:**

MET (Weather Services)

*Relationship#10*

*Service#6*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Meteorological Conditions

*Relationship#16*

*Theme#12*

**Is Required by:**

GA (General Aviation)

*Relationship#30*

*Stakeholder#21*

**To be Addressed by:**

Responsiveness to Information Needs

*Relationship#29*

*Enabling Objective#1*

4.195 **Standards for additional capabilities (equipment) for airspace compatibility should be urgently established so that they can be factored in the current designs of UAVs** *Stakeholder Need#333*

**Background:**

The establishment of a data interface is especially important for the safe operation of UAVs. It is important that the basic features or characteristics of the interface are established as soon as possible. The next generation of UAVs are being designed today. The majority of UAVs are on the small side compared to manned aircraft.

**Description:**

Standards for additional capabilities (equipment) for airspace compatibility should be urgently established so that they can be factored in the current designs (weight, space, electromagnetic interference, data required) of the UAVs.

**Applies to Service:**

Air Navigation Systems Planning & Development

*Relationship#10*

*Service#2*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Standardisation

*Relationship#16*

*Theme#47*

**Is Required by:**

The UAV Operator Community (civil and military)

*Relationship#30*

*Stakeholder#23*

**To be Addressed by:**

*Relationship#29*

Ensure Cost Effective System Inter-Operability and Evolution *Strategic Objective#23*

4.196 **Strategic Airspace Management should perform a continuous optimisation of the RNAV routes** *Stakeholder Need#450*

**Description:**

Strategic Airspace Management should perform a continuous optimisation of the RNAV routes, in order that the basic route structure:

- is flexible enough to adapt to operators' changing traffic patterns;
- gives users the opportunity to capitalise upon new technological developments (e.g. GPS, RNAV).

**Applies to Service:**

ASM (Airspace Management)

*Relationship#10*

*Service#15*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Flexibility

*Relationship#16*

*Theme#20*

Optimisation

*Theme#23*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Free Routes vs Structured Routes

*Relationship#29*

*Trade-off Topic#2*

4.197 **Strategic capacity allocation must be based on the projected demand, not on plans imposed by flow management** *Stakeholder Need#398*

**Description:**

The basic requirement concerning strategic demand/capacity balancing is that there should be no pre-planned balancing of demand imposed by EATMS, i.e. strategic capacity allocation must be based on the projected demand.

**Applies to Service:**

ATFM (Air Traffic Flow Management)

*Relationship#10*

*Service#16*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Capacity

*Relationship#16*

*Theme#28*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

General Capacity Objective

*Relationship#29*

*Strategic Objective#9*

4.198      **The airport operators require that ATM is able to cope with unexpected changes in airport capacity**      *Stakeholder Need#441*

**Background:**

There are cases in which a disruption of the airport capacity can occur due to causes such as: blocking of runway or taxiway due to an incident/accident, unpredicted weather changes, failure of equipment (e.g. ILS, radar, ATC computer) etc.

**Description:**

The airport operators require that the EATMS is able to cope with unexpected changes in airport capacity. In other words, the system must manage unscheduled disruption with the minimum impact on the standards of service and capacity provided.

**Applies to Service:**

Coordination with Aerodrome Operators

*Relationship#10*

*Service#25*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Capacity

*Relationship#16*

*Theme#28*

Flexibility

*Theme#20*

Survivability

*Theme#40*

**Is Required by:**

The Airport Community

*Relationship#30*

*Stakeholder#4*

**To be Addressed by:**

General Capacity Objective

*Relationship#29*

*Strategic Objective#9*

4.199      **The airspace division (e.g. FIRs, division between upper/lower airspace, etc.) should be fully transparent to the users during strategic flight planning**      *Stakeholder Need#454*

**Description:**

The airspace division (e.g. FIRs, division between upper/lower airspace, etc.) should be fully transparent to the users during strategic flight planning.

**Applies to Service:**

ASM (Airspace Management)

*Relationship#10*

*Service#15*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Efficiency

*Relationship#16*

*Theme#50*

Principles of Treatment

*Theme#2*

Usability

*Theme#41*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

One Airspace Principle

*Relationship#29*

*Strategic Principle#1*

#### 4.200 **The airspace users emphasize the need for improved availability of information, for the benefit of increased flight safety** Stakeholder Need#383

##### **Background:**

Many of today's safety risks in aviation can be traced back to a problem of information availability and/or available information not being properly processed. For technical and operational reasons, EATMS is expected to be a system in which a great deal more information will be available than today. This information will also be more accurate, more up to date and more accessible.

##### **Description:**

Users wish to see that an improved availability of information is to the maximum extent exploited to the benefit of flight safety. This implies mechanisms to ensure that information critical to, or contributing to flight safety is produced and made available to the right person at the right time and in the right form.

##### **Applies to Service:**

ATS (Air Traffic Services)

*Relationship#10*

*Service#3*

##### **Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

##### **Is about Theme:**

Safety & Security

*Relationship#16*

*Theme#37*

##### **Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

##### **To be Addressed by:**

Information Dissemination Capabilities

*Relationship#29*

*Enabling Objective#3*

#### 4.201 **The application of flow restrictions should be the exception, not the normal situation** Stakeholder Need#351

##### **Background:**

The primary objective for the EATMS is to provide the level of service and capacity required to meet the demand. The capacity of the infrastructure must be sufficient to permit airlines a high degree of freedom and flexibility for planning services to meet this demand.

However it has been recognised that it may not always be economically justifiable to provide capacity which is able to meet every peak demand level. Under certain exceptional circumstances ATFM procedures will need to be activated.

##### **Description:**

ATFM services are needed in EATMS, but the application of flow restrictions should be the exception, not the normal situation.

##### **Note:**

The purpose of ATFM when activated in these exceptional circumstances is to ensure an optimum flow of air traffic to or through areas during times when demand exceeds or is expected to exceed the available capacity of the ATC system. ATFM should assist ATC in meeting its objectives and achieving the most efficient utilisation of available airspace and airport capacity while keeping delay cost to a minimum.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ATFM (Air Traffic Flow Management)	<i>Service#16</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Capacity	<i>Theme#28</i>
Flexibility	<i>Theme#20</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
Commercial Air Transport (Airlines)	<i>Stakeholder#20</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
ATM-induced Delay	<i>Strategic Objective#14</i>

4.202      **The ATC system should not be the limiting factor for the expansion of airport capacity**      *Stakeholder Need#491*

**Background:**

Users also expect that the RWY capacity will still be a limiting factor in 20 years time. New technologies will have to increase the airport capacity and the airspace capacity will have to match that increase.

**Description:**

The ATC system should not be the limiting factor for the expansion of airport capacity.

<b>Applies to Service:</b>	<i>Relationship#10</i>
Coordination with Aerodrome Operators	<i>Service#25</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Capacity	<i>Theme#28</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
Commercial Air Transport (Airlines)	<i>Stakeholder#20</i>
The Airport Community	<i>Stakeholder#4</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Best Use of Available Airport Capacity	<i>Strategic Objective#10</i>

4.203      **The ATM network must provide timely and accurate data in the detail required for cost recovery of its service in a multilaterally consistent manner**      *Stakeholder Need#391*

**Description:**

EATMS must provide timely and accurate data in the detail required for cost recovery of its service in a multilaterally consistent manner.

<b>Applies to Service:</b>	<i>Relationship#10</i>
Cost Recovery	<i>Service#23</i>



<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Integration	<i>Theme#49</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
Commercial Air Transport (Airlines)	<i>Stakeholder#20</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
ATM Information Pool Management	<i>Enabling Objective#4</i>
Information Dissemination Capabilities	<i>Enabling Objective#3</i>

4.204      **The ATM network should be able to accommodate military missions and special flights; in particular aerial refueling, formation flights and long duration flights**      *Stakeholder Need#511*

**Background:**

Military aircraft which practice combat or real operations training, require special flight procedures.

**Description:**

EATMS should be able to accommodate military missions and special flights; in particular:

- aerial refueling
- formation flights
- long duration flights, composed of a defence mission and return to base.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ATC (Air Traffic Control)	<i>Service#17</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Interoperability	<i>Theme#22</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
The OAT (Operational Air Traffic) Airspace User Community	<i>Stakeholder#14</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
National Security and Defence Requirements: General Objective	<i>Strategic Objective#19</i>

4.205      **The ATM network should be open to all users. No one should be given priority because of his class of traffic**      *Stakeholder Need#65*

**Description:**

The principle of access is that the EATMS system should be opened to all users. No one should be given priority because of his class of traffic.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ATM (Air Traffic Management)	<i>Service#14</i>



<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Availability	<i>Theme#16</i>
Principles of Treatment	<i>Theme#2</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
Airspace Users	<i>Stakeholder#3</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Fair Access to Required ATM Services	<i>Strategic Objective#13</i>
Individual vs Collective Benefit	<i>Trade-off Topic#3</i>

- 4.206      **The ATM transition plan should be coordinated with the aircraft operator plans, such that new airborne capabilities are matched by corresponding ground system functionality in the same time frame**      *Stakeholder Need#374*

**Background:**

In certain cases, aircraft operators may take the lead in equipping their aircraft with advanced equipment. To let those users take advantage of their investment, it is essential that:

**Description:**

The EATMS transition plan should be coordinated with the aircraft operator plans, such that new airborne capabilities are matched by corresponding ground system functionality in the same time frame.

<b>Applies to Service:</b>	<i>Relationship#10</i>
Air Navigation Systems Planning & Development	<i>Service#2</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Evolvability	<i>Theme#19</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
Airspace Users	<i>Stakeholder#3</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Ensure Cost Effective System Inter-Operability and Evolution	<i>Strategic Objective#23</i>

4.207      **The basic ability to ensure one's own separation (in VMC), without any electronic interface with ground facilities or other aircraft, should never be lost**      *Stakeholder Need#266*

**Description:**

The sports and recreational aviation community wishes to stress that, for reasons of cost, maintenance, weight and power consumption, they wish to fly with a minimum of equipment, when flying to visual flight rules (in VMC), in airspace that is classified for VFR flight.

In other words: the basic ability to ensure one's own separation (in VMC), without any electronic interface with ground facilities or other aircraft, should never be lost. The overall cost of the possible equipment (always a problem anyway) can be prohibitive for many air sports. Equipment should never replace the discipline of visual navigation and look-out, when flying VFR.

**Applies to Service:**

CNS/ATM Services

*Relationship#10*

*Service#9*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:**

GA (General Aviation)

*Relationship#30*

*Stakeholder#21*

**To be Addressed by:**

General Economic Objective: Cost Reduction

*Relationship#29*

*Strategic Objective#6*

4.208      **The calculation of the optimum 4D trajectory and the final decision on the acceptance of an allocated trajectory must always rely with the operator**      *Stakeholder Need#404*

**Description:**

The calculation of the optimum 4D trajectory and the final decision on the acceptance of an allocated trajectory must always rely with the operator - either during pre-flight planning or while airborne. If the trajectory requested by the operator is not available, EATMS should offer alternative options from which the operator will choose and comply with.

Alternatively, a procedure could be laid down, allowing the operator to determine a suitable trajectory based on complete traffic information for the locations and times concerned.

**Applies to Service:**

ATM (Air Traffic Management)

*Relationship#10*

*Service#14*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:**

*Relationship#30*

Commercial Air Transport (Airlines)	Stakeholder#20
<b>To be Addressed by:</b>	Relationship#29
Flexibility	Strategic Objective#16
Flight Efficiency	Strategic Objective#17

4.209      **The capacity evolution of the ATM network should be driven by market demand**      Stakeholder Need#412

**Background:**

The aircraft operators need the ability to schedule/operate aircraft at a time which is in response to market demand (if applicable).

**Description:**

EATMS should provide the level of service and the capacity required to meet the market demand.

**Note:**

The demand by airspace users is derived from the market and as a prerequisite for allowing competitive service by the airlines, the capacity of the infrastructure must be sufficient to permit airlines a high degree of freedom and flexibility for planning services that will meet this demand.

**Applies to Service:**

ATM (Air Traffic Management)

Relationship#10

Service#14

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

Relationship#18

Meeting#1

**Is about Theme:**

Capacity

Relationship#16

Theme#28

**Is Required by:**

Commercial Air Transport (Airlines)

Relationship#30

Stakeholder#20

**To be Addressed by:**

General Capacity Objective

Relationship#29

Strategic Objective#9

4.210      **The charging system for CNS/ATM should be non-discriminatory and cost related, containing a movement related element to cover fixed costs, and a time in the system element to cover variable costs**      Stakeholder Need#294

**Background:**

This requirement addresses specific charging issues raised by the implementation of CNS/ATM. Although this is a new environment, all basic IATA / ICAO principles such as non-discrimination, cost relationship, financial transparency, etc. should still be adhered to.

**Description:**

Aspects of CNS/ATM, such as the Global Navigation Satellite System (GNSS) basic signal, which provide benefit to a multitude of users are a public good and costs should be borne by States.

The charging system for CNS/ATM should be non-discriminatory and cost related. Therefore, it is important that the charging system contain the following elements:

- a movement related element to cover fixed costs.
- a time in the system element to cover variable costs.

Any change to the charging system should take into consideration the recognised ICAO principle of gradualism.

**Note:**

The IATA User Charges Panel (UCP) ICAO / FANS Working Group is still considering a number of issues which may have to be included in a more detailed supplementary paper to this policy statement.

**Applies to Service:**

Cost Recovery

*Relationship#10*

*Service#23*

**Has Source:**

IATA User Charges Panel (UCP) ICAO / FANS WG, User Charges Policy for CNS/ATM (4th Draft (22 July 1994))

*Relationship#18*

*Document#2*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Pricing Management

*Relationship#29*

*Strategic Objective#8*

- 4.211 **The combination of equipage requirements and benefits should be such that operators are naturally invited to upgrade. This is preferred over the method of imposing or mandating equipment/capabilities** *Stakeholder Need#373*

**Description:**

The combination of equipage requirements and benefits should be such that operators are naturally invited to upgrade. This strategy is preferred over the method of imposing or mandating equipment/capabilities.

**Note:**

The EATMS transition plan should create incentives (such as RNAV SIDS and trunk routes) for aircraft with advanced avionics capabilities supporting EATMS.

**Applies to Service:**

Air Navigation Systems Planning & Development

*Relationship#10*

*Service#2*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:** Relationship#16  
Evolvability Theme#19  
Principles of Treatment Theme#2

**Is Required by:** Relationship#30  
Commercial Air Transport (Airlines) Stakeholder#20

**To be Addressed by:** Relationship#29  
Mandating vs Incentive Trade-off Topic#4

4.212 **The control capacity at and around airports should not act as a constraint on an airport schedule** Stakeholder Need#330

**Background:**

There are many different definitions of airport capacity. All are complicated involving many different factors. The result of these various techniques is a published capacity for scheduling purposes. It is important that EATMS does not constrain the magnitude or make up of an airport schedule.

**Description:**

EATMS must provide unconstrained airspace capacity, which should not act as a constraint on an airports schedule.

**Applies to Service:** Relationship#10  
Air Navigation Systems Planning & Development Service#2

**Has Source:** Relationship#18  
ATM User Requirements Workshop (Brussels, Sep. 1994) Meeting#1

**Is about Theme:** Relationship#16  
Capacity Theme#28

**Is Required by:** Relationship#30  
Commercial Air Transport (Airlines) Stakeholder#20  
The Airport Community Stakeholder#4

**To be Addressed by:** Relationship#29  
Fair Access to Required ATM Services Strategic Objective#13

4.213 **The cost of services required for the use of airspace by sporting and recreational aviation, should be kept to an absolute minimum** Stakeholder Need#449

**Background:**

Sporting and Recreational Aviation is a responsible and competent partner in the use of airspace and is entitled to its fair share in accordance with human values of sport, recreation and education.

**Description:**

The cost of services to airports required for the use of airspace, should be kept to an absolute minimum.

**Note:**

This is particularly important to encourage the participation of young people.

Each of the different airports has differing requirements and has differing abilities to conform to the various airspace regulations. Gliding has the most extensive requirements of all airports.

**Applies to Service:**

Cost Recovery

*Relationship#10*

*Service#23*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Efficiency

*Relationship#16*

*Theme#50*

**Is Required by:**

GA (General Aviation)

*Relationship#30*

*Stakeholder#21*

**To be Addressed by:**

General Economic Objective: Cost Reduction

*Relationship#29*

*Strategic Objective#6*

4.214

**The current level of flight safety must be maintained and where feasible improved. Low visibility operations at major airports is seen as such an area where flight safety could be improved**

*Stakeholder Need#369*

**Description:**

The current level of flight safety must be maintained and where feasible improved. Low visibility operations at major airports is seen as such an area where flight safety could be improved.

**Applies to Service:**

ATC (Air Traffic Control)

*Relationship#10*

*Service#17*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Low Visibility Conditions

*Relationship#16*

*Theme#14*

Safety

*Theme#38*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Enhancing the Safety Management Methods

*Relationship#29*

*Strategic Objective#2*

4.215      **The development of a strategy and transition path towards the Target Concept needs to be done cooperatively between service providers and airspace users**      *Stakeholder Need#407*

**Background:**

At this moment, the users find it difficult to identify milestones in detail. When asked which milestone would be the most significant one to them, the answer was: the application of data link for ATC purposes.

**Description:**

The definition of milestones for the development of EATMS will need to be done when the development process is laid down in more detail in agreement between providers and users.

**Applies to Service:**

Air Navigation Systems Planning & Development

*Relationship#10*

*Service#2*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Evolvability

*Relationship#16*

*Theme#19*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Ensure Cost Effective System Inter-Operability and Evolution

*Relationship#29*

*Strategic Objective#23*

4.216      **The ECAC area should be 'open' for all flights without internal artificial boundaries which require prior overflight permission to be obtained**      *Stakeholder Need#411*

**Description:**

Current procedures in respect of overflight permission for certain States should be abolished. The ECAC area should be "open" for all flights without internal artificial boundaries which require prior permission to be obtained.

**Note:**

This refers to diplomatic clearances which today are still needed by certain operators to overfly certain States in the ECAC area.

**Applies to Service:**

Flight Plan Processing Services

*Relationship#10*

*Service#7*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

*Relationship#29*

One Airspace Principle  
Sovereignty Principle

*Strategic Principle#1*  
*Strategic Principle#5*

4.217      **The evolution of the cost and quality of ATM services should be driven by the requirement not to impair the competitiveness of the European air transport industry**      *Stakeholder Need#368*

**Background:**

EATMS is a part of aviation, hence it is its own business interest to keep aviation competitive. As an essential element in the future European air transport infrastructure, EATMS must provide an adequate framework to enable the expected growth of the air transport industry. Consequently:

**Description:**

EATMS cost and services should not impair the competitiveness of the European air transport industry.

**Applies to Service:**

Air Navigation Services

*Relationship#10*

*Service#1*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Performance

*Relationship#16*

*Theme#24*

**Is Required by:**

The Aviation Industry

*Relationship#30*

*Stakeholder#1*

**To be Addressed by:**

Capacity vs Costs

*Relationship#29*

*Trade-off Topic#1*

Co-ordination of Resources

*Strategic Objective#29*

General Economic Objective: Cost Reduction

*Strategic Objective#6*

4.218      **The final decision on allocation of a trajectory and eventual changes must always remain with the aircraft operators**      *Stakeholder Need#322*

**Background:**

The optimum trajectory can only be calculated by the aircraft operators themselves because it is strongly determined by factors which are only available to the internal organization of the aircraft operators. These factors have a major impact on the operating cost and are primarily derived from the individual operator's policy governing the economics of flight operations. For competition reasons, aircraft operators cannot provide these factors to an external entity, e.g. EATMS. This is the essential reason why the decision on allocation of a trajectory and eventual changes must remain with the operators.

**Description:**

The decision on allocation of a trajectory and eventual changes must remain with the aircraft operators.



**Note:**

The message in this requirement is: EATMS will always have less information about a flight than the operators. Hence the system should not attempt to tell the operators what their optimum trajectory is.

The initiative to request a trajectory will come from the users. EATMS may accept the request or propose alternatives. However the operator shall always be the final authority to accept or reject a trajectory (clearance).

**Applies to Service:**

ATM (Air Traffic Management)

*Relationship#10*

*Service#14*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

Security

*Theme#39*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Information Acquisition Capabilities

*Relationship#29*

*Enabling Objective#2*

Information Ownership, Licencing and Pricing

*Enabling Objective#6*

Information Security

*Enabling Objective#5*

4.219

**The future ATM system has to be based on a benefit-driven approach supported by clear business cases and must incorporate measurable performance targets**

*Stakeholder Need#513*

**Applies to Service:**

Air Navigation Services

*Relationship#10*

*Service#1*

**Has Source:**

ATM 2000+ Workshop (Luxemburg, Feb. 1998)

*Relationship#18*

*Meeting#2*

**Is about Theme:**

Quality Assurance

*Relationship#16*

*Theme#42*

**Is Required by:**

The Aviation Industry

*Relationship#30*

*Stakeholder#1*

**To be Addressed by:**

Economy Principle

*Relationship#29*

*Strategic Principle#3*

Performance-Driven Approach

*Strategic Objective#30*

4.220

**The human (pilot/controller) should always be in a position to do a final check on the validity of information**

*Stakeholder Need#386*

**Description:**

The human should be the last check on security. EATMS should be implemented so that the human (pilot/controller) is the security check.

**Note:**

This does not preclude automated security checks. Emphasis is here on the final check before taking major operational decisions.

**Applies to Service:**

ATS (Air Traffic Services)

*Relationship#10*

*Service#3*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Safety & Security

*Relationship#16*

*Theme#37*

Situational Awareness

*Theme#6*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

ATM Information Pool Management

*Relationship#29*

*Enabling Objective#4*

Human Involvement and Commitment

*Strategic Objective#24*

Information Security

*Enabling Objective#5*

4.221

**The human will remain an essential part of the ATM system for the foreseeable future and this has to be taken into account in the early design stages of the enabling systems and infrastructure**

*Stakeholder Need#520*

**Applies to Service:**

Air Navigation Systems Planning & Development

*Relationship#10*

*Service#2*

**Has Source:**

ATM 2000+ Workshop (Luxemburg, Feb. 1998)

*Relationship#18*

*Meeting#2*

**Is about Theme:**

Human Factors

*Relationship#16*

*Theme#3*

**Is Required by:**

The Aviation Industry

*Relationship#30*

*Stakeholder#1*

**To be Addressed by:**

The ATM 2000+ Strategy Management Process

*Relationship#29*

*Process#1*

4.222

**The intermodal transport system in Europe should be optimised for the travelling public in terms of travelling time, cost and environmental impact**

*Stakeholder Need#300*

**Background:**

Each mode of transport has got dedicated functions in the overall European transport system. The objective should be to integrate the different transport modes for the benefit of the whole system and its users in such a way, that the system for the travelling public is optimised in terms of travelling time, cost and environmental impact. In this context:

**Description:**

EATMS should not impose barriers to the European transportation network which would have repercussions on the competitiveness of the European economy as a whole.

**Applies to Service:**

Air Navigation Services

*Relationship#10*

*Service#1*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Optimisation

*Relationship#16*

*Theme#23*

**Is Required by:**

The Aviation Industry

*Relationship#30*

*Stakeholder#1*

**To be Addressed by:**

Capacity vs Costs

*Relationship#29*

*Trade-off Topic#1*

4.223

**The interoperability between ATM and military air command and control systems should provide the unrestricted, timely and accurate exchange of relevant information**

*Stakeholder Need#291*

**Background:**

In order for the flexible use of airspace concept and military air operations to be compatible, a common perception of the airspace and the air traffic situation between EATMS and the military C2 systems must exist. [The URD should include a statement of goals for the interoperability between EATMS and the various military air C2 systems.]

The accommodation of military air operations can be enhanced through the application of the concept for flexible use of airspace but only if the perception of the airspace and its utilization at the tactical level is shared by both EATMS and the military air command and control systems. In the absence of such a common perception, restrictions either on the flexible use of airspace or on military air operations can be expected. Attaining the necessary common perception requires a higher level of interoperability among these systems than has been the case.

Interoperability is the ability of systems to provide services to and accept services from other systems and to use the services so exchanged to enable them to operate effectively together. With regard to air traffic management and air command and control systems the most important services are adequate and timely information. The highest level of interoperability among information systems implies a definition of data and data relationships which is common to the systems.

**Description:**

In order to enable responsive and effective military air operations within the flexible use of airspace, the interoperability between EATMS and military air command and control systems should provide the unrestricted, timely and accurate exchange of

- a. pre-tactical and tactical airspace management information including the real-time airspace requirements for military activities and NOTAMs;
- b. flight data, to include air tracks and flight plan data;
- c. airfield status information;
- d. tactical control of aircraft, using common hand-over procedures
- e. position data based on a common datum (WGS-84)

**Applies to Service:**

Civil / Military Coordination

*Relationship#10*

*Service#27*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Accuracy

*Relationship#16*

*Theme#25*

Efficiency

*Theme#50*

Flexibility

*Theme#20*

Interoperability

*Theme#22*

Timeliness

*Theme#31*

**Is Required by:**

The OAT (Operational Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#14*

**To be Addressed by:**

*Relationship#29*

Information Acquisition Capabilities

*Enabling Objective#2*

Information Dissemination Capabilities

*Enabling Objective#3*

National Security and Defence Requirements: General Objective

*Strategic Objective#19*

Responsiveness to Information Needs

*Enabling Objective#1*

4.224

**The long-term expectations regarding charging principles can be found in a number of ICAO and IATA documents**

*Stakeholder Need#438*

**Description:**

The IATA long-term expectations regarding charging principles are contained in the applicable ICAO and IATA documents.

**Note:**

From the user charges point of view there are several existing policy, recommendation, and guideline papers in existence. These include:

ICAO Doc 9082/4 Council Statements  
ICAO Doc 9161/2 (currently [11/1994] being revised at ICAO ANSEP)  
ICAO Airports Economics Manual  
IATA User Charges Panel (UCP) Handbook  
IATA UCP Noise and Environmental Charges Policy

**Applies to Service:**

Cost Recovery

*Relationship#10*

*Service#23*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Pricing Management

*Relationship#29*

*Strategic Objective#8*

4.225

**The main environmental role of ATM would be to provide adequate capacity, enabling the users to fly their requested trajectories** *Stakeholder Need#327*

**Background:**

The users are of the opinion that the reduction of noise and gaseous emissions is primarily their own responsibility. Of all the techniques they use to achieve that goal, the one that EATMS is concerned with is the user preferred trajectory request, which is near the trajectory with minimum gaseous emissions.

**Description:**

The main environmental role of EATMS would be to provide adequate capacity, enabling the users to fly their requested trajectories.

**Note:**

However, users recognise that due to local or temporarily high concentrations of traffic, certain deviations from these trajectories may be unavoidable. In those cases, EATMS is expected to choose trade-offs which organise the total traffic flow in such a way that the additional environmental impact due to congestion is kept at a minimum.

**Applies to Service:**

ATM (Air Traffic Management)

*Relationship#10*

*Service#14*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:**

*Relationship#30*

Commercial Air Transport (Airlines) *Stakeholder#20*  
**To be Addressed by:** *Relationship#29*  
Supplementary Environment Objectives *Strategic Objective#18*

4.226 **The military have a need for airspace to support, among other operations, their training activities. The need to interface and communicate with civilian ATM systems has been recognised** *Stakeholder Need#109*

**Description:**

The military have a need for airspace to support, among other operations, their training activities. The need to interface and communicate with civilian ATM systems has been recognised.

**Note:**

NATO will provide a paper on the issue for inclusion in the URD.

**Applies to Service:** *Relationship#10*  
ASM (Airspace Management) *Service#15*

**Has Source:** *Relationship#18*  
ATM User Requirements Workshop (Brussels, Sep. 1994) *Meeting#1*

**Is about Theme:** *Relationship#16*  
Accessibility (in space) *Theme#17*  
Interoperability *Theme#22*

**Is Required by:** *Relationship#30*  
The OAT (Operational Air Traffic) Airspace User Community *Stakeholder#14*

**To be Addressed by:** *Relationship#29*  
National Security and Defence Requirements: General Objective *Strategic Objective#19*

4.227 **The need to increase airport capacity and airport and en-route capacity gains has to be balanced and remain in step if the full benefits of future investments are to be realised** *Stakeholder Need#517*

**Applies to Service:** *Relationship#10*  
ATC (Air Traffic Control) *Service#17*  
Coordination with Aerodrome Operators *Service#25*

**Has Source:** *Relationship#18*  
ATM 2000+ Workshop (Luxemburg, Feb. 1998) *Meeting#2*

**Is about Theme:** *Relationship#16*  
Capacity *Theme#28*

**Is Required by:** *Relationship#30*  
The Aviation Industry *Stakeholder#1*

**To be Addressed by:** *Relationship#29*  
General Capacity Objective *Strategic Objective#9*

#### 4.228 **The operators who have invested in advanced equipment for their aircraft shall be entitled to receive adequate benefits** *Stakeholder Need#372*

##### **Description:**

The operators who have invested in advanced equipment for their aircraft shall be entitled to receive adequate benefits.

The foregoing implies a certain preferential treatment of advanced users over conventional users (e.g. preferential trajectories for advanced users).

##### **Note:**

This might in some extreme cases lead to situations in which the advanced users receive all the available new benefits and the conventional users none. However, in accordance with other requirements, EATMS shall limit any preferential treatment to ensure at all times that the conventional users receive at least the same Quality of Service as today.

##### **Applies to Service:**

ATM (Air Traffic Management)

*Relationship#10*

*Service#14*

##### **Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

##### **Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

##### **Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

##### **To be Addressed by:**

Mandating vs Incentive

*Relationship#29*

*Trade-off Topic#4*

#### 4.229 **The principle of 'Bench Marking' should be adopted in conjunction with the establishment of performance standards** *Stakeholder Need#296*

##### **Background:**

The essence of a Quality of Service monitoring system is, that it provides the feedback which enables the service providers to implement corrective measures in the deficient areas. To that effect, it must be possible to define the deficiencies in an objective manner.

This in turn requires that:

- performance standards exist
- performance measurements are possible

The comparison of the measurements against the standards results in the identification of the deficiencies.

Due to the complexity of the ATM process, simple measurements are most likely not possible, and statistical performance averages may not be relevant to individual flights. This is why performance measurement will probably have to resort to 'Bench Marking', i.e. the measurement of system performance for a limited representative set of (flight) scenarios.

**Description:**

The principle of 'Bench Marking' should be adopted in conjunction with the establishment of performance standards, to enable the monitoring of the quality of service provided by the system. For example in terms of:

- Punctuality
- Fluidity (uninterrupted flow)

**Note:**

The implementation of such methodology will help to establish the necessary confidence of the individual users of EATMS. After all, this is the system on which they rely for their daily operations.

At the same time this is a tool for ensuring the cost effectiveness of the services provided.

**Applies to Service:**

Quality of Service (Performance) Monitoring

*Relationship#10*

*Service#21*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Quality Assurance

*Relationship#16*

*Theme#42*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Freedom of Movement and Service Quality Principle

*Relationship#29*

Performance-Driven Approach

*Strategic Principle#4*

*Strategic Objective#30*

4.230

**The principle of 'no routine voice' communications should apply to all flight phases (ground/ground and air/ground communications)**

*Stakeholder Need#352*

**Description:**

There is a user requirement to eliminate as much voice communication as possible. There should be no routine voice communications (the "silent cockpit").

The principle of "no routine voice" communications should apply to all flight phases (ground/ground and air/ground communications).

**Note:**

In addition, the pilot wants as few frequency changes as possible and expects the ground ATC system to have total knowledge of his pre-departure and departure plans and requests.

**Applies to Service:**

COM (Communication Services)

*Relationship#10*

*Service#11*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*



**Is about Theme:** *Relationship#16*  
Workload *Theme#8*

**Is Required by:** *Relationship#30*  
Commercial Air Transport (Airlines) *Stakeholder#20*

**To be Addressed by:** *Relationship#29*  
Communication Capabilities *Enabling Objective#7*  
Human Involvement and Commitment *Strategic Objective#24*

4.231 **The procedures for completing and submitting flight plans should be simplified** *Stakeholder Need#474*

**Description:**  
In EATMS, procedures for completing flight plans should be simplified.

**Note:**  
This includes the requirement that communication means used to submit flight plans must be improved throughout the ECAC Area.

**Applies to Service:** *Relationship#10*  
Flight Plan Processing Services *Service#7*

**Has Source:** *Relationship#18*  
ATM User Requirements Workshop (Brussels, Sep. 1994) *Meeting#1*

**Is about Theme:** *Relationship#16*  
Usability *Theme#41*

**Is Required by:** *Relationship#30*  
The GAT (General Air Traffic) Airspace User Community *Stakeholder#13*

**To be Addressed by:** *Relationship#29*  
Information Acquisition Capabilities *Enabling Objective#2*

4.232 **The quality assurance of source data (navigation data, clearances etc.) is becoming a real flight safety issue** *Stakeholder Need#310*

**Background:**  
With the increased use of automation, the amount of information distributed in databases and exchanged via datalink will be increasing significantly.

**Description:**  
The quality assurance of source data (navigation data, clearances etc.) is becoming a real flight safety issue.

**Applies to Service:** *Relationship#10*  
ATS (Air Traffic Services) *Service#3*

**Has Source:** *Relationship#18*  
ATM User Requirements Workshop (Brussels, Sep. 1994) *Meeting#1*

**Is about Theme:** *Relationship#16*  
Quality Assurance *Theme#42*  
Safety *Theme#38*

	<b>Is Required by:</b> Commercial Air Transport (Airlines)	<i>Relationship#30</i> <i>Stakeholder#20</i>
	<b>To be Addressed by:</b> ATM Information Pool Management	<i>Relationship#29</i> <i>Enabling Objective#4</i>
4.233	<b>The right of access to airspace for all users must be a central objective</b>	<i>Stakeholder Need#516</i>
	<b>Applies to Service:</b> Air Navigation Services	<i>Relationship#10</i> <i>Service#1</i>
	<b>Has Source:</b> ATM 2000+ Workshop (Luxemburg, Feb. 1998)	<i>Relationship#18</i> <i>Meeting#2</i>
	<b>Is about Theme:</b> Accessibility (in space)	<i>Relationship#16</i> <i>Theme#17</i>
	<b>Is Required by:</b> The Aviation Industry	<i>Relationship#30</i> <i>Stakeholder#1</i>
	<b>To be Addressed by:</b> Fair Access to Airspace	<i>Relationship#29</i> <i>Strategic Objective#11</i>
4.234	<b>The role of essential services such as meteorology and AIS has to be recognised and statements concerning national defence needs and military requirements strengthened and expanded</b>	<i>Stakeholder Need#525</i>
	<b>Applies to Service:</b> AIS, MET & Flight Plan Processing Services Third Party Coordination	<i>Relationship#10</i> <i>Service#4</i> <i>Service#24</i>
	<b>Has Source:</b> ATM 2000+ Workshop (Luxemburg, Feb. 1998)	<i>Relationship#18</i> <i>Meeting#2</i>
	<b>Is about Theme:</b> Integration	<i>Relationship#16</i> <i>Theme#49</i>
	<b>Is Required by:</b> The Aviation Industry	<i>Relationship#30</i> <i>Stakeholder#1</i>
	<b>To be Addressed by:</b> Information Dissemination Capabilities National Security and Defence Requirements: General Objective	<i>Relationship#29</i> <i>Enabling Objective#3</i> <i>Strategic Objective#19</i>

4.235      **The services rendered by ATM should in principle not be compulsory but basically offered and be made available to all categories of users whenever they need them**      *Stakeholder Need#292*

**Description:**

With regard to cost implications, the services rendered by the EATMS should in principle not be compulsory but basically offered and be made available to all categories of users whenever they need them. When, in other words, a user prefers not to use EATMS services, or wants to use only a limited set thereof, and when there is no requirement to do so, he should be free to refrain from using EATMS services.

**Applies to Service:**

ATS (Air Traffic Services)

*Relationship#10*

*Service#3*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Fair Access to Required ATM Services

*Relationship#29*

Pricing Management

*Strategic Objective#13*

*Strategic Objective#8*

4.236      **The sovereignty of States over their own airspace should not hinder a flexible, optimized use of airspace according to the airspace users' operational needs**      *Stakeholder Need#305*

**Description:**

The sovereignty of States over their own airspace should not hinder a flexible, optimized use of airspace according to the airspace users' operational needs.

**Applies to Service:**

ASM (Airspace Management)

*Relationship#10*

*Service#15*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

One Airspace Principle

*Relationship#29*

Sovereignty Principle

*Strategic Principle#1*

*Strategic Principle#5*

4.237      **The system and/or the controller will have to keep  
airspace free to allow the pilot to deviate from his  
clearance in case of emergency**      *Stakeholder Need#428*

**Background:**

Some emergencies require that the aircraft deviates from its clearance (negotiated profile). If the emergency permits, the pilot will request a renegotiation of the profile. However, in some cases this will not be possible and the pilot will need to fly initially according to the traffic display (on-board the aircraft, if installed).

**Description:**

The system and/or the controller will have to keep airspace free to allow the pilot to deviate from his clearance in case of emergency.

**Applies to Service:**

ATC (Air Traffic Control)

*Relationship#10*

*Service#17*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Safety

*Relationship#16*

*Theme#38*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Enhancing the Safety Management Methods

*Relationship#29*

*Strategic Objective#2*

4.238      **The system shall be capable of Quality Control Analysis. i.e. measure how well all performance targets are being met**      *Stakeholder Need#393*

**Description:**

The system shall be capable of Quality Control Analysis. i.e. measure how well all requirements are being met.

The requirements should be defined in a kind of 'Service Agreement', which lists the QoS indicators (termed Performance Productivity Indicators, PPI, by IATA).

Example of parameters include: excess route length, delays, the acceptance of VFR/IFR transitions.

The system should take account of existing work which has been done in respect of performance indicators (IATA).

The system should be capable of continuous output of the sort of statistics contained in the CSD (already done within CFMU).

At least the parameters covering flight safety levels should be measured.

Parameters about "customer" satisfaction, e.g. deviations from optimum performance.

The parameters should be comparable regardless of the source (e.g. time, WGS-84).

However, commercially (or otherwise) sensitive data must be secured.

An independent co-ordinating entity to monitor quality of service of the whole EATMS area is required.

**Applies to Service:**

Quality of Service (Performance) Monitoring

*Relationship#10*

*Service#21*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Performance

*Relationship#16*

*Theme#24*

Quality Assurance

*Theme#42*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Business-Driven Approach: to define a 'service levels' policy

*Relationship#29*

*Strategic Objective#26*

Information Security

*Enabling Objective#5*

Performance-Driven Approach

*Strategic Objective#30*

4.239      **The system should remain human centered for the foreseeable time, and the needs of human operators (pilots and controllers) must be duly taken into account**      *Stakeholder Need#396*

**Description:**

EATMS needs to provide sufficient and consistent situational awareness to both pilots and controllers.

HMI, automation and the associated workload must be acceptable by its human operators.

The final responsibility and decision making must remain with the human operator. The ATC system should never be directly coupled with the FMS without active control of the pilot. This requirement applies only to the exchange of ground-to-air commands or acceptance of air-ground contracts, not to data exchanges to improve the situational awareness in the air or on the ground.

Time required for education and training must be duly considered in the implementation planning.

**Applies to Service:**

ATC (Air Traffic Control)

*Relationship#10*

*Service#17*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Human Factors

*Relationship#16*

*Theme#3*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Human Involvement and Commitment

*Relationship#29*

*Strategic Objective#24*

4.240      **The system should strike the right balance between robustness and fallback procedures**      *Stakeholder Need#311*

**Description:**

On one hand, users expect a very high resilience to service disruption. This causes stringent availability, integrity, continuity requirements. On the other hand, the system should strike the right balance between robustness and fallback procedures.

**Applies to Service:**

ATS (Air Traffic Services)

*Relationship#10*

*Service#3*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Survivability

*Relationship#16*

*Theme#40*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Freedom of Movement and Service Quality Principle

*Relationship#29*

*Strategic Principle#4*

4.241      **The system's resilience to service disruption must be at least the same as today**      *Stakeholder Need#15*

**Description:**

The system's resilience to service disruption must be at least the same as today.

**Applies to Service:**

ATS (Air Traffic Services)

*Relationship#10*

*Service#3*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Survivability

*Relationship#16*

*Theme#40*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Freedom of Movement and Service Quality Principle

*Relationship#29*

*Strategic Principle#4*

4.242      **The users see a need to provide a 'pull' strategy to provide the incentive for the shortest transition period possible (simultaneous support of old and new functionality)**      *Stakeholder Need#38*

**Description:**

The users see a need to provide a "pull" strategy to provide the incentive for the shortest transition period possible.

**Applies to Service:**

Air Navigation Systems Planning & Development

*Relationship#10*

*Service#2*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Evolvability

*Relationship#16*

*Theme#19*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Ensure Cost Effective System Inter-Operability and Evolution  
Mandating vs Incentive

*Relationship#29*

*Strategic Objective#23*

*Trade-off Topic#4*

4.243      **The users want a cost recovery system which is fully integrated with the ATM system**      *Stakeholder Need#431*

**Description:**

CRCO & EATMS should not be considered separate entities (CRCO = part of EATMS).

**Note:**

What the users really want is a cost recovery system which is fully integrated with the ATM system. This is the only way to ensure that the information exchange between ATM and cost recovery functions is sufficiently detailed and harmonised to satisfy the various user requirements regarding charging principles.

**Applies to Service:**

Cost Recovery

*Relationship#10*

*Service#23*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Integration

*Relationship#16*

*Theme#49*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Ensure Cost Effective System Inter-Operability and Evolution  
Pricing Management

*Relationship#29*

*Strategic Objective#23*

*Strategic Objective#8*

4.244

**The users want a highly cost efficient billing system  
without losing the requirement of fair charging principles**

*Stakeholder Need#435*

**Description:**

The users want a highly cost efficient billing system without losing the requirement of fair charging principles.

**Applies to Service:**

Cost Recovery

*Relationship#10*

*Service#23*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Efficiency

Principles of Treatment

*Relationship#16*

*Theme#50*

*Theme#2*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Pricing Management

*Relationship#29*

*Strategic Objective#8*



4.245      **The users want mechanisms to ensure that emergency related message exchanges (on whatever communication medium) have priority over all other communications**      *Stakeholder Need#425*

**Description:**

The generic requirement is that EATMS has to accommodate the needs of the users to communicate emergency status and future aircraft intentions through various means such as voice (VHF/ HF), ADS, Datalink, etc. The users want mechanisms to ensure that emergency related message exchanges (on whatever communication medium) have priority over all other communications.

Emergency related messages can be exchanged manually or automatically. Users do not want all emergency warnings in the cockpit to reach ATC; they need a priority button, filter to request special EATMS service. The existing (manual) squawk capability (7700 code) should co-exist with electronic means to inform ATC of abnormal condition.

All users express the need for protection of the emergency VHF/HF frequency.

**Applies to Service:**

COM (Communication Services)

*Relationship#10*

*Service#11*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Safety

*Relationship#16*

*Theme#38*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Communication Capabilities

Information Acquisition Capabilities

*Relationship#29*

*Enabling Objective#7*

*Enabling Objective#2*

4.246      **The users want to see the ATM network to be cost efficient as a whole: the total cost of providing the whole set of services should be minimised, to keep the total cost base at a minimum**      *Stakeholder Need#326*

**Background:**

Users require EATMS to be cost-efficient because the cost of providing the services including related investments for implementation are recovered by user charges. This implies that firstly, the cost associated with the services of EATMS must be affordable for the user community as a whole. Furthermore, however, users strongly require that the specified, affordable set of services, with certain associated and agreed quality of service levels is provided by EATMS at minimum cost.

**Description:**

The users want to see EATMS to be cost efficient as a whole: the total cost of providing the whole set of services should be minimised, to keep the total cost base at a minimum. In other words, the situation should be avoided where the cost optimisation would only focus on individual service subsets and EATMS subsystems, because this would inevitably lead to a total cost base which is higher than the real optimum.

**Note:**

In this context, the total set of services does not only include all the in-flight services, but also the pre-flight and post-flight services

**Applies to Service:**

Air Navigation Systems Planning & Development

*Relationship#10*

*Service#2*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Optimisation

*Relationship#16*

*Theme#23*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

General Economic Objective: Cost Reduction

*Relationship#29*

*Strategic Objective#6*

4.247

**The users would not like to see datalink as a simple substitution of current voice communication procedures**

*Stakeholder Need#360*

**Description:**

The users would not like to see datalink as a simple substitution of current voice communication procedures.

**Note:**

The real benefits will come from introducing new procedures taking advantage of the special capabilities of datalink.

**Applies to Service:**

COM (Communication Services)

*Relationship#10*

*Service#11*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Efficiency

*Relationship#16*

*Theme#50*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Information Acquisition Capabilities

*Relationship#29*

*Enabling Objective#2*

Information Dissemination Capabilities

*Enabling Objective#3*

4.248      **The wind errors in 18-24 hr forecasts should be reduced to meet the new flight planning accuracy requirements of the airspace users**      *Stakeholder Need#342*

**Description:**

Met. forecasts have to be improved to meet the new accuracy requirement of the airspace users: wind errors in 18-24 hr forecasts should be reduced from 10 kts to 5 kts, and from 2 to 1 degrees for temperature.

**Note:**

This can only be achieved through the use of high resolution met. models.

**Applies to Service:**

MET (Weather Services)

*Relationship#10*

*Service#6*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Magnitude of Error

*Relationship#16*

*Theme#26*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

ATM Information Pool Management

*Relationship#29*

*Enabling Objective#4*

4.249      **There is a requirement to examine who has the responsibility for the certification of met equipment, personnel and met products for aeronautical services**      *Stakeholder Need#200*

**Description:**

Certification of service standards, etc., was considered to be a general EATMS item; this should include met.

There is a requirement to examine who has the responsibility for the certification of met equipment, personnel and met products for aeronautical services.

**Applies to Service:**

Coordination with Weather Service Providers

*Relationship#10*

*Service#26*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Certification

Legal Aspects

*Relationship#16*

*Theme#44*

*Theme#9*

**Is Required by:**

Information Service Providers

*Relationship#30*

*Stakeholder#17*

**To be Addressed by:**

General Quality Management Objective

*Relationship#29*

*Strategic Objective#20*

4.250 **There should be a clearly defined mechanism to ensure a continuous two-way dialogue with the users regarding the evolution of ATM** *Stakeholder Need#328*

**Background:**

The EATMS users feel that in the past, they had little involvement in ground ATM system development and little visibility of cost recovery.

In essence, they wish to see a system which is in constant conformance to customers' expectations, even if these change over time. To that effect:

**Description:**

Together with the introduction of EATMS, there should be a clearly defined mechanism to ensure a continuous dialogue/consultation with the users.

**Note:**

The mechanism should in particular ensure that:

- ATM system developers (service providers) are duly informed about changing user requirements;
- there is a better flow of information from ATM system developers to users;
- users have better knowledge of the cost recovery implications of the provision of ATM services. This includes both investment and daily operating costs.

**Applies to Service:**

Air Navigation Systems Planning & Development

*Relationship#10*

*Service#2*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Evolvability

*Relationship#16*

*Theme#19*

**Is Required by:**

Airspace Users

*Relationship#30*

*Stakeholder#3*

**To be Addressed by:**

Mandating vs Incentive

*Relationship#29*

*Trade-off Topic#4*

4.251 **There should be compatibility of weather forecast information from different sources to allow maximum exchange of data** *Stakeholder Need#188*

**Background:**

Definitions: nowcasts (0-2 hrs), very short range forecasts (2-12 hrs), short range forecasts (12-96 hrs) and medium range forecasts (>4 days)

**Description:**

The times for forecast periods should be redefined instead of using the terms "very short range, short range, medium range forecasts", etc., in the time intervals stated above. Two time frames should be separately addressed: those used by nowcasting or forecasting methods and those required by all forecast product users such as operators and the ATM system as a whole.

There should be compatibility of forecast information from different sources to allow maximum exchange of data.

**Applies to Service:**

Coordination with Weather Service Providers

*Relationship#10*

*Service#26*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Integration

*Relationship#16*

*Theme#49*

Meteorological Conditions

*Theme#12*

**Is Required by:**

Information Service Providers

*Relationship#30*

*Stakeholder#17*

**To be Addressed by:**

ATM Information Pool Management

*Relationship#29*

*Enabling Objective#4*

4.252

**There should be no obligation to file ATS flight plans for cross-border flights conducted according to VFR within the EU**

*Stakeholder Need#264*

**Background:**

The principle of recreational VFR flight clearly has no relationship with national boundaries, and ATS basically have no need to be informed about e.g. glider or balloon flights, especially when the destination of their flights cannot be known for certain. The flight plan obligation for VFR cross-border flights in fact seems to stem from outdated political and economical reasons which have nothing to do with sporting aviation.

**Description:**

It is therefore recommended that there should be no obligation to file ATS flight plans for cross-border flights conducted according to VFR within the EU.

**Applies to Service:**

Flight Plan Processing Services

*Relationship#10*

*Service#7*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:**

GA (General Aviation)

*Relationship#30*

*Stakeholder#21*

**To be Addressed by:**

Information Acquisition Capabilities

*Relationship#29*

*Enabling Objective#2*

4.253      **Training and familiarisation must be possible in the ATM transition schedule**      *Stakeholder Need#406*

**Background:**

Pilots and airline ops controllers can only make optimum use of EATMS if they understand how the system works, e.g. it must be cognizable. Therefore:

**Description:**

Training and familiarisation must be possible in the EATMS transition schedule.

**Applies to Service:**

Air Navigation Systems Planning & Development

*Relationship#10*

*Service#2*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Education and Training

*Relationship#16*

*Theme#4*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Human Involvement and Commitment

*Relationship#29*

*Strategic Objective#24*

4.254      **Under no circumstances should airspace users be required to pay for services not used / received**      *Stakeholder Need#477*

**Description:**

Under no circumstances should airspace users be required to pay for services not used / received.

**Applies to Service:**

Cost Recovery

*Relationship#10*

*Service#23*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:**

GA (General Aviation)

*Relationship#30*

*Stakeholder#21*

**To be Addressed by:**

Pricing Management

*Relationship#29*

*Strategic Objective#8*

4.255      **Under no circumstances should airspace users pay twice for a given service**      *Stakeholder Need#437*

**Description:**

Under no circumstances should airspace users pay twice for a given service.

**Note:**

For example, the development of EATMS should not allow the proliferation of Met data providers whose costs would fall on the EATMS users.

**Applies to Service:**

Cost Recovery

*Relationship#10*

*Service#23*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Pricing Management

*Relationship#29*

*Strategic Objective#8*

**4.256 Use of conventionally equipped aircraft in ECAC airspace should not be made impossible** *Stakeholder Need#371*

**Description:**

The introduction of EATMS should not have an adverse impact on the users' ability to fly conventionally equipped aircraft in European airspace. They should at least be able to continue their operations under the same conditions as today.

**Note:**

On the other hand, these users understand that at certain times and locations, they may be deprived of many of the benefits made possible by EATMS, such as reduced delays, better flight efficiency, improved airspace/airport access, increased flight safety etc.

**Applies to Service:**

CNS/ATM Services

*Relationship#10*

*Service#9*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Fair Access to Airports

*Relationship#29*

Fair Access to Airspace

*Strategic Objective#12*

Fair Access to Required ATM Services

*Strategic Objective#11*

Individual vs Collective Benefit

*Strategic Objective#13*

*Trade-off Topic#3*

4.257 **User charging should be based on the principle of a basic service defined as a common cost base, plus optional services which should only be paid for as used** *Stakeholder Need#436*

**Description:**

A basic service should be defined as a common cost base, and everyone pays for this. The optional services would be paid for as used.

**Note:**

The questions to be resolved are: what constitutes this basic service, and what are the optional ones?

It was noted that differential cost recovery is already used today for Met services.

GA is in favour for charges differentiated according to use of services.

**Applies to Service:**

Cost Recovery

*Relationship#10*

*Service#23*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Principles of Treatment

*Relationship#16*

*Theme#2*

**Is Required by:**

GA (General Aviation)

*Relationship#30*

*Stakeholder#21*

**To be Addressed by:**

Pricing Management

*Relationship#29*

*Strategic Objective#8*

4.258 **User consultation is essential in order to achieve suitable retrofit schedules** *Stakeholder Need#493*

**Description:**

User consultation is essential in order to achieve suitable retrofit schedules.

**Applies to Service:**

Air Navigation Systems Planning & Development

*Relationship#10*

*Service#2*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Evolvability

*Relationship#16*

*Theme#19*

**Is Required by:**

The Aviation Industry

*Relationship#30*

*Stakeholder#1*

**To be Addressed by:**

Ensure Cost Effective System Inter-Operability and Evolution  
Mandating vs Incentive

*Relationship#29*

*Strategic Objective#23*

*Trade-off Topic#4*



4.259 **Users are looking for AIS/MET self-briefing facilities at all aerodromes and from home via personal computer through the Internet** *Stakeholder Need#365*

**Description:**

Users are looking for self-briefing facilities at all aerodromes and from home via personal computer through an open network, in order to obtain information on airspace occupancy (slots), AIP, weather, and NOTAMs.

**Note:**

This service should be provided for the entire ECAC area. In order to make it as cost effective as possible it should be available through local network nodes such as CompuServe without incurring long distance charges.

**Applies to Service:**

AIS, MET & Flight Plan Processing Services

*Relationship#10*

*Service#4*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Integration

*Relationship#16*

*Theme#49*

**Is Required by:**

GA (General Aviation)

*Relationship#30*

*Stakeholder#21*

**To be Addressed by:**

Information Dissemination Capabilities

*Relationship#29*

*Enabling Objective#3*

4.260      **Users ask for a capability to provide Met. information to aircraft in flight via datalink**      *Stakeholder Need#424*

**Background:**

Meteorological data are a key element to aircraft operations. They have a direct impact on:

- safety
- operational procedures
- economic efficiency
- regularity
- passenger comfort

Positive effects can be:

- Flying an aircraft in tail wind conditions, at the optimum level. The reduction in fuel consumption and flight duration will provide for an immediate economic return.
- Operating in smooth, good weather conditions will reduce the risk of damage to the aircraft and insure passenger comfort and safety giving commercial credit to the company.

Adverse effects are unfortunately more common and cost companies even more:

- A significant number of fatalities occurring in aviation take place in adverse weather conditions.
- Weather effect is a factor in numerous equipment failures inducing extra maintenance cost.
- The need for operational procedures and aircraft equipment to cope with all significant weather phenomena (meteors, icing, crosswind, turbulence, windshear, low level temperature inversion, etc.) induces training, maintenance, operational costs (e.g. to deice an aircraft on the ground costs money, using on-board anti-ice systems during a flight encounter will increase fuel consumption).

It is essential to know the value of all meteorological parameters which need to be taken into account for a safe, profitable flight.

At the moment this knowledge can be obtained at the early preparation stage and through periodical updates provided by the various AIS services. This leaves pilots with a sketchy perspective and sometimes with little time to plan alternative action in case of significant weather change at destination.

In the context of the introduction of air/ground datalink there is an opportunity to increase pilots' situational awareness by sending MET data directly to the cockpit using uplink functions. Real time information on adverse weather conditions, wind strength and direction, outside temperature along the planned aircraft trajectory will be of great use to any pilot.

**Description:**

Users should be provided with the necessary SIGMET information and aerodrome METARS and TAFS. If required by the operators, these should be available through data link.

In order to provide the necessary accuracy, aircraft flight management systems may require an update of the upper air (wind and temperature) data. In this case the data should be in a form suitable for direct loading into the aircraft FMS.

**Applies to Service:**

FIS (Flight Information Services)

*Relationship#10*

*Service#8*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Accuracy

*Relationship#16*

*Theme#25*

Availability

*Theme#16*

Integration

*Theme#49*

Meteorological Conditions

*Theme#12*

Standardisation

*Theme#47*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Information Dissemination Capabilities

*Relationship#29*

*Enabling Objective#3*

4.261

**Users desire a ground based trajectory deviation monitoring function**

*Stakeholder Need#87*

**Description:**

EATMS needs to perform a continuous monitoring and inference (every 30" or every minute) from 4D flight profile deviation (for both involuntary or emergency cases). If no new negotiation is triggered, alarm is raised and the existing assumed 3-mi bubble is increased to 10 mi, say. This requirement does not apply to all users.

**Applies to Service:**

Surveillance Services

*Relationship#10*

*Service#13*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Safety

*Relationship#16*

*Theme#38*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

General Safety Objective

*Relationship#29*

*Strategic Objective#1*

4.262      **Users desire flexible use of terminal airspace, with mandatory SIDs and STARs eliminated as much as possible**      *Stakeholder Need#488*

**Background:**

Often, the requirement is for direct routing between departure and destination aerodromes. However users understand that for environmental protection (e.g. noise reduction, avoidance of sensitive areas such as nuclear power plants or bird sanctuaries) and terrain clearance reasons (e.g. minimum safe altitude maintenance in mountainous areas), direct routing is not always possible in the vicinity of aerodromes.

**Description:**

In the future, mandatory SIDs and STARs should exist for environmental protection and terrain clearance reasons only, i.e. mandatory SIDs and STARs for traffic separation reasons (streaming of traffic flows) should disappear, as the users' 4D profiles would contain all trajectory elements.

**Note:**

If for certain reasons ATC cannot grant the requested departure or arrival trajectory, the ATM system should in real time offer to the user a set of second choice SID or STAR. The user decides which of the second choice options to take.

**Applies to Service:**

ATM (Air Traffic Management)

*Relationship#10*

*Service#14*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Flexibility

*Relationship#16*

*Theme#20*

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30*

*Stakeholder#13*

**To be Addressed by:**

Best Use of Available Airport Capacity

Supplementary Environment Objectives

*Relationship#29*

*Strategic Objective#10*

*Strategic Objective#18*

4.263      **Users desire fully automated facilities for direct, personal flight plan filing, available at all aerodromes and from home via personal computer through the Internet**      *Stakeholder Need#366*

**Description:**

Users desire fully automated facilities for direct, personal flight plan filing. These should be user friendly (graphical, menu-driven), check the validity of the proposed flight plan against the latest environment data (AIP, AICs, NOTAMs, weather, etc.), provide positive feedback on the acceptance of the flight plan, and enable subsequent consultation and modification/cancellation of the filed flight plan by the pilot.

The facilities should be available at all aerodromes and from home via personal computer through an open network.

**Applies to Service:**

AIS, MET & Flight Plan Processing Services

*Relationship#10*

*Service#4*

<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Integration	<i>Theme#49</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
GA (General Aviation)	<i>Stakeholder#21</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Information Acquisition Capabilities	<i>Enabling Objective#2</i>

4.264 **Users desire to see all airport, enroute and other service charges on a single bill for each flight** *Stakeholder Need#432*

**Background:**

The CRCO implements a multinational billing mechanism, currently limited to part of the EUR Region. This is better than billing on national level, but still inadequate for airlines conducting intercontinental flights.

**Description:**

Users wish only a single bill for each flight.

**Note:**

As a result the users require that, after the turn of the century, multi-regional (i.e. covering several ICAO regions) mechanisms be introduced. The creation of such mechanisms is beyond the scope of EATMS, but if they are introduced, it must be ensured that EATMS is a participant.

Billing should be done from a regional or multi-regional office; EATMS should certainly not revert to national billing.

<b>Applies to Service:</b>	<i>Relationship#10</i>
Cost Recovery	<i>Service#23</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Integration	<i>Theme#49</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
Commercial Air Transport (Airlines)	<i>Stakeholder#20</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Information Dissemination Capabilities	<i>Enabling Objective#3</i>
Pricing Management	<i>Strategic Objective#8</i>

4.265 **Users express the desire to implement the 4D profile communication capability via datalink early in the ATM transition schedule** *Stakeholder Need#359*

**Description:**

Users express the desire to implement the 4D profile communication capability via datalink early in the EATMS implementation programme.

<b>Applies to Service:</b>	<i>Relationship#10</i>
Air Navigation Systems Planning & Development	<i>Service#2</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Evolvability	<i>Theme#19</i>
Timeliness	<i>Theme#31</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
Commercial Air Transport (Airlines)	<i>Stakeholder#20</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Ensure Cost Effective System Inter-Operability and Evolution	<i>Strategic Objective#23</i>

4.266 **Users regard the Global Navigation Satellite System (GNSS) as the future navigation infrastructure** *Stakeholder Need#505*

**Description:**  
Users regard the Global Navigation Satellite System (GNSS) as the future navigation infrastructure.

<b>Applies to Service:</b>	<i>Relationship#10</i>
Navigation Services	<i>Service#12</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Principles of Treatment	<i>Theme#2</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
The GAT (General Air Traffic) Airspace User Community	<i>Stakeholder#13</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Navigation and Clock Synchronisation Capabilities	<i>Enabling Objective#8</i>

4.267 **Users require the provision of adequate flight safety in a very high traffic density environment** *Stakeholder Need#466*

**Description:**  
Users require the provision of adequate flight safety in a very high traffic density environment. This requires particular consideration during the development and operation of EATMS.

**Note:**  
In particular, while operating in such a high density area, they require that flight safety levels will not degrade under adverse conditions, e.g. ground system failure, in-flight contingencies, hazardous weather, etc.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ATC (Air Traffic Control)	<i>Service#17</i>

<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Safety	<i>Theme#38</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
The GAT (General Air Traffic) Airspace User Community	<i>Stakeholder#13</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
General Safety Objective	<i>Strategic Objective#1</i>

4.268 **Users suggest to define flight safety indicators, and implement detection (monitoring) and control mechanisms to (automatically ?) limit capacity increases when safety limits/thresholds are reached** *Stakeholder Need#308*

**Description:**

There is a suggestion from the users to define flight safety indicators, and implement detection (monitoring) and control mechanisms to (automatically ?) limit capacity increases when safety limits/thresholds are reached (to prevent use of the system above nominal 100% capacity load).

<b>Applies to Service:</b>	<i>Relationship#10</i>
ATC (Air Traffic Control)	<i>Service#17</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Capacity	<i>Theme#28</i>
Safety	<i>Theme#38</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
The GAT (General Air Traffic) Airspace User Community	<i>Stakeholder#13</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Improving the Evaluation of the Actual Safety Levels Within Europe	<i>Strategic Objective#4</i>

4.269 **Users want flexibility with regard to navigational equipment used** *Stakeholder Need#506*

**Description:**

Navigation shall be based on the application of ICAO's RNP (required navigation performance) concept, allowing a high degree of flexibility for aircraft operators with regard to navigational equipment used.

<b>Applies to Service:</b>	<i>Relationship#10</i>
Navigation Services	<i>Service#12</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Flexibility	<i>Theme#20</i>

**Is Required by:**

The GAT (General Air Traffic) Airspace User Community

*Relationship#30**Stakeholder#13***To be Addressed by:**

Fair Access to Required ATM Services

*Relationship#29**Strategic Objective#13*

Mandating vs Incentive

*Trade-off Topic#4*

4.270

**Users want pre-coordinated contingency plans to take into account exceptional events such as weather, labour disputes, unforeseen breakdown of ATM system components, etc.**

*Stakeholder Need#413***Description:**

Users want pre-coordinated contingency plans to take into account exceptional events such as weather, labour disputes, unforeseen breakdown of ATM system components, etc.

**Note:**

This information should be available as part of pre-flight services.

**Applies to Service:**

AIS (Aeronautical Information Services)

*Relationship#10**Service#5***Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18**Meeting#1***Is about Theme:**

Survivability

*Relationship#16**Theme#40***Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30**Stakeholder#20***To be Addressed by:**

Responsiveness to Information Needs

*Relationship#29**Enabling Objective#1*

4.271

**Users want surveillance services compatible with global standards. Surveillance coverage should exist throughout the complete European ECAC area**

*Stakeholder Need#252***Background:**

A surveillance system is present today, but its coverage is incomplete.

**Description:**

Users want a surveillance services compatible with global standards. Surveillance coverage should exist throughout the complete European ECAC area.

**Applies to Service:**

Surveillance Services

*Relationship#10**Service#13***Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18**Meeting#1***Is about Theme:**

Accessibility (in space)

*Relationship#16**Theme#17*

Standardisation

*Theme#47*



**Is Required by:** Relationship#30  
Commercial Air Transport (Airlines) Stakeholder#20  
**To be Addressed by:** Relationship#29  
Surveillance Capabilities Enabling Objective#9

4.272 **Users wish that in future European ATM the human is still the decision maker** Stakeholder Need#316

**Description:**  
Users wish that in EATMS the human is still the decision maker.

**Applies to Service:** Relationship#10  
ATM (Air Traffic Management) Service#14  
**Has Source:** Relationship#18  
ATM User Requirements Workshop (Brussels, Sep. 1994) Meeting#1  
**Is about Theme:** Relationship#16  
Human Factors Theme#3

**Is Required by:** Relationship#30  
Airspace Users Stakeholder#3  
CNS/ATM Service Providers Stakeholder#6  
**To be Addressed by:** Relationship#29  
Human Involvement and Commitment Strategic Objective#24

4.273 **Weather service providers need mechanisms to ensure feedback from users about the quality of their forecasts** Stakeholder Need#339

**Background:**  
Weather service providers want to undertake statistical studies and need to validate their forecasting methods.

**Description:**  
For feedback purposes, weather service providers need to be routinely informed by EATMS and airspace users about the actual weather (i.e. actual values of forecasted parameters and the occurrence of the forecasted phenomena).

**Applies to Service:** Relationship#10  
Coordination with Weather Service Providers Service#26  
**Has Source:** Relationship#18  
ATM User Requirements Workshop (Brussels, Sep. 1994) Meeting#1  
**Is about Theme:** Relationship#16  
Integration Theme#49

**Is Required by:** Relationship#30  
Information Service Providers Stakeholder#17  
**To be Addressed by:** Relationship#29  
Information Dissemination Capabilities Enabling Objective#3

4.274 **Weather service providers need to know from the ATM designers, which met. model accuracy and resolution is required to satisfy their trajectory prediction requirements** *Stakeholder Need#445*

**Background:**

There is a certain cost-benefit aspect to the introduction of high-resolution met. models for the purpose of trajectory prediction.

Obviously it would be useless to continue increasing the accuracy and resolution, because beyond a certain point there would be no additional benefits to ATM, pre-flight planning and the FMS.

**Description:**

Weather service providers need to know from the EATMS designers, which met. model accuracy and resolution is required to satisfy their trajectory prediction requirements.

**Note:**

This accuracy and resolution may be different depending on the aircraft flight phase (e.g. different requirements for terminal area models, enroute models, oceanic models).

**Applies to Service:**

Coordination with Weather Service Providers

*Relationship#10*

*Service#26*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Accuracy

*Relationship#16*

*Theme#25*

**Is Required by:**

Information Service Providers

*Relationship#30*

*Stakeholder#17*

**To be Addressed by:**

ATM Information Pool Management

*Relationship#29*

*Enabling Objective#4*

4.275 **Where possible, GA operators wish to conduct their operation independent of the airlines' airspace use (e.g. no use of higher flight levels, use of uncontrolled General Aviation airports)** *Stakeholder Need#453*

**Background:**

With regard to strategic airspace management, many General Aviation participants have no desire to mingle with airline operators.

**Description:**

Where possible, GA operators wish to conduct their operation independent of the airlines' airspace use (e.g. no use of higher flight levels, use of uncontrolled General Aviation airports).

**Applies to Service:**

ASM (Airspace Management)

*Relationship#10*

*Service#15*

<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Availability	<i>Theme#16</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
GA (General Aviation)	<i>Stakeholder#21</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Fair Access to Airports	<i>Strategic Objective#12</i>
Fair Access to Airspace	<i>Strategic Objective#11</i>

- 4.276 **With agreement of the operators concerned, deviations from the 'first come first served' principle should be allowed in the interest of overall traffic optimization, e.g. at congested airports** *Stakeholder Need#402*

**Background:**

For allocation of trajectories / airspace / departure slots etc., the 'first come first served' principle should generally apply. However:

**Description:**

With agreement of the operators concerned, deviations from the 'first come first served' principle should be allowed in the interest of overall traffic optimization, e.g. at congested airports.

<b>Applies to Service:</b>	<i>Relationship#10</i>
ATFM (Air Traffic Flow Management)	<i>Service#16</i>
<b>Has Source:</b>	<i>Relationship#18</i>
ATM User Requirements Workshop (Brussels, Sep. 1994)	<i>Meeting#1</i>
<b>Is about Theme:</b>	<i>Relationship#16</i>
Principles of Treatment	<i>Theme#2</i>
<b>Is Required by:</b>	<i>Relationship#30</i>
Airspace Users	<i>Stakeholder#3</i>
<b>To be Addressed by:</b>	<i>Relationship#29</i>
Individual vs Collective Benefit	<i>Trade-off Topic#3</i>

- 4.277 **Within the strategically laid down capacity framework, as far as feasible being adjusted to demand, ATM must be flexible enough to take short-term changes of the operators' intentions into account** *Stakeholder Need#401*

**Background:**

Airlines are willing to provide EATMS with long-term information about flight schedules in order to allow EATMS strategic planning of the provision of capacity. Such information may be provided for a complete scheduling period after the IATA scheduling coordination conferences (or similar coordination processes which might apply in the future). However, these longer term plans cannot provide an adequate basis for trajectory allocation, nor are they to be understood as a commitment by the airlines for departure or arrival times at the airports concerned.

**Description:**

Within the strategically laid down capacity framework, as far as feasible being adjusted to demand, EATMS must be flexible enough to take short-term changes of the operators' intentions into account.

**Note:**

Usually, a firm - committing - calculation of a trajectory can only be performed with the accuracy required shortly before the planned departure time, in order to take into account actual loading, performance, weather data etc.

**Applies to Service:**

ATC (Air Traffic Control)

*Relationship#10*

*Service#17*

**Has Source:**

ATM User Requirements Workshop (Brussels, Sep. 1994)

*Relationship#18*

*Meeting#1*

**Is about Theme:**

Flexibility

*Relationship#16*

*Theme#20*

**Is Required by:**

Commercial Air Transport (Airlines)

*Relationship#30*

*Stakeholder#20*

**To be Addressed by:**

Flexibility

*Relationship#29*

*Strategic Objective#16*

**ANNEX 2**

**OVERVIEW OF  
KNOWLEDGE BASE  
CONTENTS**

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## IDENTIFICATION AND OVERVIEW

### KNOWLEDGE BASE IDENTIFICATION

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File: **C:\ERAT\SCSKB201.MDB**  
Short Title:  
Title: **Strategy, Concept & System Knowledge Base**  
Subtitle: **Annex to the ATM User Requirements Document Volume 2**  
Version: **2.01**  
Version Comments:  
Release Date: **05.01.1999**  
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**email hartmut.koelman@eurocontrol.be**  
Programme Name: **European ATC Harmonisation and Integration Programme / European ATM Programme**  
Programme Code: **EATCHIP/EATMP**  
Project Name: **Strategy, Concept & System Development**  
Project Code: **CSD**  
Workpackage Name: **ATM Concept and Requirements - General**  
Workpackage Code: **CSD/3/00/**

### PURPOSE AND STATUS (Description)

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This knowledge base (KB) originated in 1995, in support of the URD 1.0 development activity. Today, it contains information extracted from several deliverables of the EATCHIP/EATMP Strategy, Concept & System Development process. A limited subset of this information is published as URD Volume 2 edition 2.0.

Specifically, this knowledge base contains:

- From the EATCHIP Management Handbook (edition December 1998): the ATM stakeholder segmentation model;
- From the URD 2.0: stakeholders needs categorised by stakeholder, Air Navigation Service and theme; with traceability to the ATM 2000+ Strategy;
- From the ATM 2000+ Strategy (edition November 1998): the overall and strategic objectives, strategic principles, performance targets, trade-off topics, core ATM processes, Lines of Action, operational improvements, implementation objectives (approximate dates & applicability); with traceability to enablers, stakeholder needs and a first draft of traceability links to concept elements;
- From the OCD 1.0: the concept elements with a first draft of traceability links to the ATM 2000+ Strategy.

## USER DEFINED DATA VIEWS AND REPORTS (sorting & grouping of knowledge subsets)

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List of Abbreviations

URD Chapter 1: ATM Stakeholders - Contents

URD Chapter 1: ATM Stakeholders - Index

URD Chapter 1: ATM Stakeholders - Description

URD Chapter 2: Air Navigation Services - Contents

URD Chapter 2: Air Navigation Services - Index

URD Chapter 2: Air Navigation Services - Description

URD Chapter 3: Requirement Themes - Contents

URD Chapter 3: Requirement Themes - Index

URD Chapter 3: Requirement Themes - Description

URD Chapter 4: Alphabetical List of Stakeholder Needs - Contents

URD Chapter 4: Alphabetical List of Stakeholder Needs - Index

URD Chapter 4: Alphabetical List of Stakeholder Needs - Description

ATM 2000+: Inventory of material extracted from Volume 2 (sequence as appearing in the docum

ATM 2000+: Inventory of material extracted from Volume 2 (sorted per entity type)

ATM 2000+: Strategic Objectives, Principles and Targets

ATM 2000+: Lines of Action with Operational Improvements

ATM 2000+: Time Line of Implementation Objectives (time and place of operational improvements)

ATM 2000+: ATM Development in Terms of Enablers for Operational Improvements

OCD: The ATM Target Concept

Entire Knowledge Base contents (all entities in alphabetical order)



## CONTENT SUMMARY PART 1: STATISTICS PER ENTITY TYPE

### Acft. Enabler: 21

*An enabler to be implemented in aircraft*

#### Relationships

<Acft. Enabler> Enables <Improvement>: 61	Relationship#21
<Acft. Enabler> Has Source <Document>: 21	Relationship#18
<Acft. Enabler> Introduced as part of <Development Area>: 24	Relationship#20

### AOC Enabler: 4

*An enabler to be implemented in AOCs (Airline Operations Centers)*

#### Relationships

<AOC Enabler> Enables <Improvement>: 13	Relationship#21
<AOC Enabler> Has Source <Document>: 4	Relationship#18
<AOC Enabler> Introduced as part of <Development Area>: 4	Relationship#20

### Apt. Enabler: 26

*An enabler to be implemented at airports*

#### Relationships

<Apt. Enabler> Enables <Improvement>: 43	Relationship#21
<Apt. Enabler> Has Source <Document>: 26	Relationship#18
<Apt. Enabler> Introduced as part of <Development Area>: 29	Relationship#20

### ATM Enabler: 71

*An enabler to be implemented in ATM systems*

#### Relationships

<ATM Enabler> Enables <Improvement>: 109	Relationship#21
<ATM Enabler> Has Source <Document>: 71	Relationship#18
<ATM Enabler> Introduced as part of <Development Area>: 80	Relationship#20

### CNS Enabler: 15

*An ATM enabler to be implemented in the ground/space CNS infrastructure*

#### Relationships

<CNS Enabler> Enables <Improvement>: 44	Relationship#21
<CNS Enabler> Has Source <Document>: 15	Relationship#18
<CNS Enabler> Introduced as part of <Development Area>: 20	Relationship#20

## Concept: 1

*A coherent set of concept elements*

### Relationships

<Concept> Characterised by <Concept Element>: 6	Relationship#25
<Concept> Has Source <Document>: 1	Relationship#18
<Concept> Needs to Address <Overall Objective>: 1	Relationship#29

## Concept Element: 62

*Part of a concept or another concept element*

### Relationships

<Concept Element> Characterised by <Concept Element>: 55	Relationship#25
<Concept Element> Has Source <Document>: 48	Relationship#18
<Concept Element> Needs to Address <Enabling Issues>: 12	Relationship#29
<Concept Element> Needs to Address <Enabling Objective>: 19	Relationship#29
<Concept Element> Needs to Address <Strategic Objective>: 79	Relationship#29
<Concept Element> Needs to Address <Strategic Principle>: 23	Relationship#29
<Concept Element> Needs to Address <Trade-off Topic>: 11	Relationship#29
<Concept Element> Characterises <Concept>: 6	Relationship#25
<Concept Element> Characterises <Concept Element>: 55	Relationship#25

## Development Area: 23

*Designates an area in which ATM is improved through the successive introduction of a number of enablers*

### Relationships

<Development Area> Includes <Development Area>: 21	Relationship#28
<Development Area> Includes introduction of <Acft. Enabler>: 24	Relationship#20
<Development Area> Includes introduction of <AOC Enabler>: 4	Relationship#20
<Development Area> Includes introduction of <Apt. Enabler>: 29	Relationship#20
<Development Area> Includes introduction of <ATM Enabler>: 80	Relationship#20
<Development Area> Includes introduction of <CNS Enabler>: 20	Relationship#20
<Development Area> Includes introduction of <Oth. Enabler>: 14	Relationship#20
<Development Area> Included in <Development Area>: 21	Relationship#28

## Document: 4

*Original source of material or subset of this database*

### Relationships

<Document> Is Source of <Acft. Enabler>: 21	Relationship#18
<Document> Is Source of <AOC Enabler>: 4	Relationship#18
<Document> Is Source of <Apt. Enabler>: 26	Relationship#18
<Document> Is Source of <ATM Enabler>: 71	Relationship#18
<Document> Is Source of <CNS Enabler>: 15	Relationship#18
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<Document> Is Source of <Concept Element>: 48	Relationship#18
<Document> Is Source of <Implem. Goal>: 33	Relationship#18
<Document> Is Source of <Improvement>: 41	Relationship#18
<Document> Is Source of <Line of Action>: 16	Relationship#18
<Document> Is Source of <Oth. Enabler>: 9	Relationship#18
<Document> Is Source of <Overall Objective>: 1	Relationship#18
<Document> Is Source of <Process>: 6	Relationship#18
<Document> Is Source of <Stakeholder>: 22	Relationship#18
<Document> Is Source of <Stakeholder Need>: 3	Relationship#18
<Document> Is Source of <Strategic Issues>: 1	Relationship#18
<Document> Is Source of <Strategic Objective>: 30	Relationship#18
<Document> Is Source of <Strategic Principle>: 7	Relationship#18
<Document> Is Source of <Target>: 61	Relationship#18
<Document> Is Source of <Trade-off Topic>: 4	Relationship#18

## Enabling Issues: 2

*A collection of Enabling Objectives*

### Relationships

<Enabling Issues> Includes <Enabling Objective>: 10	Relationship#28
<Enabling Issues> Needs to Address <Stakeholder Need>: 2	Relationship#29
<Enabling Issues> Characterises <Overall Objective>: 2	Relationship#25
<Enabling Issues> To be Addressed by <Concept Element>: 12	Relationship#29

## Enabling Objective: 10

*A strategic objective for an enabler (information management or CNS)*

### Relationships

<Enabling Objective> Needs to Address <Stakeholder Need>: 136	Relationship#29
<Enabling Objective> Included in <Enabling Issues>: 10	Relationship#28
<Enabling Objective> To be Addressed by <Concept Element>: 19	Relationship#29

## Implem. Goal: 33

*Implementation goal (approximate date & applicability)*

### Relationships

<Implem. Goal> Has Source <Document>: 33 *Relationship#18*  
<Implem. Goal> Will apply <Improvement>: 44 *Relationship#24*

## Improvement: 41

*Operational Improvement*

### Relationships

<Improvement> Has Source <Document>: 41 *Relationship#18*  
<Improvement> Will be applied in <Implem. Goal>: 44 *Relationship#24*  
<Improvement> Introduced as part of <Line of Action>: 41 *Relationship#20*  
<Improvement> Is enabled by <Acft. Enabler>: 61 *Relationship#21*  
<Improvement> Is enabled by <AOC Enabler>: 13 *Relationship#21*  
<Improvement> Is enabled by <Apt. Enabler>: 43 *Relationship#21*  
<Improvement> Is enabled by <ATM Enabler>: 109 *Relationship#21*  
<Improvement> Is enabled by <CNS Enabler>: 44 *Relationship#21*  
<Improvement> Is enabled by <Oth. Enabler>: 13 *Relationship#21*

## Line of Action: 16

*Line of Action*

### Relationships

<Line of Action> Has Source <Document>: 16 *Relationship#18*  
<Line of Action> Improves <Process>: 16 *Relationship#31*  
<Line of Action> Includes introduction of <Improvement>: 41 *Relationship#20*

## Meeting: 2

*A meeting such as a workshop*

### Relationships

<Meeting> Is Source of <Stakeholder Need>: 274 *Relationship#18*

## Oth. Enabler: 9

*Miscellaneous enablers (AIS, MET, Information Management)*

### Relationships

<Oth. Enabler> Enables <Improvement>: 13 *Relationship#21*  
<Oth. Enabler> Has Source <Document>: 9 *Relationship#18*  
<Oth. Enabler> Introduced as part of <Development Area>: 14 *Relationship#20*

## Overall Objective: 1

*An Overall Objective establishes the framework within which to develop the uniform European ATM system for the first decades of the next Century.*

### Relationships

<Overall Objective> Characterised by <Enabling Issues>: 2	Relationship#25
<Overall Objective> Characterised by <Strategic Issues>: 8	Relationship#25
<Overall Objective> Has Source <Document>: 1	Relationship#18
<Overall Objective> To be Addressed by <Concept>: 1	Relationship#29

## Process: 6

*Any kind of process*

### Relationships

<Process> Has Source <Document>: 6	Relationship#18
<Process> Includes <Process>: 4	Relationship#28
<Process> Needs to Address <Stakeholder Need>: 3	Relationship#29
<Process> Improved via <Line of Action>: 16	Relationship#31
<Process> Included in <Process>: 4	Relationship#28

## Relationship: 17

*A type of relationship*

### Relationships

## Service: 27

*Requirement category (based on the 'Service to User' categorisation in edition 1.0 of the EATMS URD)*

### Relationships

<Service> Includes <Service>: 26	Relationship#28
<Service> Included in <Service>: 26	Relationship#28
<Service> Service Needs to Address <Stakeholder Need>: 284	Relationship#10

## Stakeholder: 23

*ATM stakeholder, user group etc. as defined in the BMUN Report ed. 1.0*

### Relationships

<Stakeholder> Has Source <Document>: 22	Relationship#18
<Stakeholder> Includes <Stakeholder>: 22	Relationship#28
<Stakeholder> Requires <Stakeholder Need>: 296	Relationship#30
<Stakeholder> Included in <Stakeholder>: 22	Relationship#28

## Stakeholder Need: 277

*ATM stakeholder need as recorded during the user consultation process*

### Relationships

<Stakeholder Need> Applies to Service <Service>: 284	Relationship#10
<Stakeholder Need> Has Source <Document>: 3	Relationship#18
<Stakeholder Need> Has Source <Meeting>: 274	Relationship#18
<Stakeholder Need> Is about Theme <Theme>: 392	Relationship#16
<Stakeholder Need> Is Required by <Stakeholder>: 296	Relationship#30
<Stakeholder Need> To be Addressed by <Enabling Issues>: 2	Relationship#29
<Stakeholder Need> To be Addressed by <Enabling Objective>: 136	Relationship#29
<Stakeholder Need> To be Addressed by <Process>: 3	Relationship#29
<Stakeholder Need> To be Addressed by <Strategic Issues>: 1	Relationship#29
<Stakeholder Need> To be Addressed by <Strategic Objective>: 210	Relationship#29
<Stakeholder Need> To be Addressed by <Strategic Principle>: 14	Relationship#29
<Stakeholder Need> To be Addressed by <Trade-off Topic>: 34	Relationship#29

## Strategic Issues: 8

*A collection of Strategic Principles and Strategic Objectives*

### Relationships

<Strategic Issues> Has Source <Document>: 1	Relationship#18
<Strategic Issues> Includes <Strategic Objective>: 30	Relationship#28
<Strategic Issues> Includes <Strategic Principle>: 7	Relationship#28
<Strategic Issues> Includes <Trade-off Topic>: 4	Relationship#28
<Strategic Issues> Needs to Address <Stakeholder Need>: 1	Relationship#29
<Strategic Issues> Characterises <Overall Objective>: 8	Relationship#25

## Strategic Objective: 30

*A Strategic Performance Objective that the future ATM network will have to meet*

### Relationships

<Strategic Objective> Achieved via <Target>: 68	Relationship#23
<Strategic Objective> Has Source <Document>: 30	Relationship#18
<Strategic Objective> Needs to Address <Stakeholder Need>: 210	Relationship#29
<Strategic Objective> Included in <Strategic Issues>: 30	Relationship#28
<Strategic Objective> To be Addressed by <Concept Element>: 79	Relationship#29

## Strategic Principle: 7

*To achieve the Overall Objective, certain principles shall be systematically applied throughout the European ATM network, during the life-cycle of all ATM projects.*

*Some aspects of the principles may be quantified as measurable objectives. Other aspects may not be quantifiable, but must nevertheless provide clear guidelines.*

### Relationships

<Strategic Principle> Has Source <Document>: 7	Relationship#18
<Strategic Principle> Needs to Address <Stakeholder Need>: 14	Relationship#29
<Strategic Principle> Included in <Strategic Issues>: 7	Relationship#28
<Strategic Principle> To be Addressed by <Concept Element>: 23	Relationship#29

## Target: 61

*Target for ATM performance*

### Relationships

<Target> Has Source <Document>: 61	Relationship#18
<Target> Contributes to <Strategic Objective>: 68	Relationship#23

## Theme: 50

*Requirement theme (based on the 'Special Subject' categorisation in edition 1.0 of the EATMS URD)*

### Relationships

<Theme> Includes <Theme>: 49	Relationship#28
<Theme> Included in <Theme>: 49	Relationship#28
<Theme> Is Theme of <Stakeholder Need>: 392	Relationship#16

## Trade-off Topic: 4

*The simultaneous permanent satisfaction of all user requirements and objectives is unrealistic. Conflicts of interest are inevitable, typically for access to the same airspace or runway at the same time, and for the service levels required. The approach proposed in the Strategy is to make sure that the different trade-offs supported by the various classes of users are explicit, and that wherever possible the solutions are the optimum ones for all airspace users affected.*

*The identification and use of trade-offs is based on subtle balances between all of the relevant factors.*

### Relationships

<Trade-off Topic> Has Source <Document>: 4	Relationship#18
<Trade-off Topic> Needs to Address <Stakeholder Need>: 34	Relationship#29
<Trade-off Topic> Included in <Strategic Issues>: 4	Relationship#28
<Trade-off Topic> To be Addressed by <Concept Element>: 11	Relationship#29

## CONTENT SUMMARY PART 2: STATISTICS PER RELATIONSHIP TYPE

Achieved via >< Contributes to: 68	<i>Relationship#23</i>
Applies to Service >< Service Needs to Address: 284	<i>Relationship#10</i>
Characterised by >< Characterises: 71	<i>Relationship#25</i>
Discusses >< Discussed by: 0	<i>Relationship#19</i>
Enables >< Is enabled by: 283	<i>Relationship#21</i>
Has Source >< Is Source of: 694	<i>Relationship#18</i>
Improves >< Improved via: 16	<i>Relationship#31</i>
Includes >< Included in: 173	<i>Relationship#28</i>
Includes introduction of >< Introduced as part of: 212	<i>Relationship#20</i>
Is about Theme >< Is Theme of: 392	<i>Relationship#16</i>
Is completed by >< Marks completion of: 0	<i>Relationship#32</i>
Needs to Address >< To be Addressed by: 545	<i>Relationship#29</i>
Proposed implementation time frame for >< Implementation proposed during: 0	<i>Relationship#27</i>
Requires >< Is Required by: 296	<i>Relationship#30</i>
Subdivided into >< Subdivision of: 0	<i>Relationship#17</i>
Superclass of >< Kind of: 0	<i>Relationship#26</i>
Will be applied in >< Will apply: 44	<i>Relationship#24</i>



## CONTENT SUMMARY PART 3: STATISTICS PER RELATIONSHIP (Forward direction)

### Achieved via

*Relationship#23*

<Strategic Objective> Achieved via <Target>: 68

### Applies to Service

*Relationship#10*

<Stakeholder Need> Applies to Service <Service>: 284

### Characterised by

*Relationship#25*

<Concept> Characterised by <Concept Element>: 6  
<Concept Element> Characterised by <Concept Element>: 55  
<Overall Objective> Characterised by <Enabling Issues>: 2  
<Overall Objective> Characterised by <Strategic Issues>: 8

### Enables

*Relationship#21*

<Acft. Enabler> Enables <Improvement>: 61  
<AOC Enabler> Enables <Improvement>: 13  
<Apt. Enabler> Enables <Improvement>: 43  
<ATM Enabler> Enables <Improvement>: 109  
<CNS Enabler> Enables <Improvement>: 44  
<Oth. Enabler> Enables <Improvement>: 13

### Has Source

*Relationship#18*

<Acft. Enabler> Has Source <Document>: 21  
<AOC Enabler> Has Source <Document>: 4  
<Apt. Enabler> Has Source <Document>: 26  
<ATM Enabler> Has Source <Document>: 71  
<CNS Enabler> Has Source <Document>: 15  
<Concept> Has Source <Document>: 1  
<Concept Element> Has Source <Document>: 48  
<Implem. Goal> Has Source <Document>: 33  
<Improvement> Has Source <Document>: 41  
<Line of Action> Has Source <Document>: 16  
<Oth. Enabler> Has Source <Document>: 9  
<Overall Objective> Has Source <Document>: 1  
<Process> Has Source <Document>: 6  
<Stakeholder> Has Source <Document>: 22  
<Stakeholder Need> Has Source <Document>: 3  
<Stakeholder Need> Has Source <Meeting>: 274  
<Strategic Issues> Has Source <Document>: 1  
<Strategic Objective> Has Source <Document>: 30  
<Strategic Principle> Has Source <Document>: 7  
<Target> Has Source <Document>: 61  
<Trade-off Topic> Has Source <Document>: 4

## Improves

*Relationship#31*

<Line of Action> Improves <Process>: 16

## Includes

*Relationship#28*

<Development Area> Includes <Development Area>: 21

<Enabling Issues> Includes <Enabling Objective>: 10

<Process> Includes <Process>: 4

<Service> Includes <Service>: 26

<Stakeholder> Includes <Stakeholder>: 22

<Strategic Issues> Includes <Strategic Objective>: 30

<Strategic Issues> Includes <Strategic Principle>: 7

<Strategic Issues> Includes <Trade-off Topic>: 4

<Theme> Includes <Theme>: 49

## Includes introduction of

*Relationship#20*

<Development Area> Includes introduction of <Acft. Enabler>: 24

<Development Area> Includes introduction of <AOC Enabler>: 4

<Development Area> Includes introduction of <Apt. Enabler>: 29

<Development Area> Includes introduction of <ATM Enabler>: 80

<Development Area> Includes introduction of <CNS Enabler>: 20

<Development Area> Includes introduction of <Oth. Enabler>: 14

<Line of Action> Includes introduction of <Improvement>: 41

## Is about Theme

*Relationship#16*

<Stakeholder Need> Is about Theme <Theme>: 392

## Needs to Address

*Relationship#29*

<Concept> Needs to Address <Overall Objective>: 1

<Concept Element> Needs to Address <Enabling Issues>: 12

<Concept Element> Needs to Address <Enabling Objective>: 19

<Concept Element> Needs to Address <Strategic Objective>: 79

<Concept Element> Needs to Address <Strategic Principle>: 23

<Concept Element> Needs to Address <Trade-off Topic>: 11

<Enabling Issues> Needs to Address <Stakeholder Need>: 2

<Enabling Objective> Needs to Address <Stakeholder Need>: 136

<Process> Needs to Address <Stakeholder Need>: 3

<Strategic Issues> Needs to Address <Stakeholder Need>: 1

<Strategic Objective> Needs to Address <Stakeholder Need>: 210

<Strategic Principle> Needs to Address <Stakeholder Need>: 14

<Trade-off Topic> Needs to Address <Stakeholder Need>: 34

## Requires

*Relationship#30*

<Stakeholder> Requires <Stakeholder Need>: 296

## Will be applied in

*Relationship#24*

<Improvement> Will be applied in <Implem. Goal>: 44

## CONTENT SUMMARY PART 4: STATISTICS PER RELATIONSHIP (Reverse direction)

### Characterises

*Relationship#25*

<Concept Element> Characterises <Concept>: 6  
<Concept Element> Characterises <Concept Element>: 55  
<Enabling Issues> Characterises <Overall Objective>: 2  
<Strategic Issues> Characterises <Overall Objective>: 8

### Contributes to

*Relationship#23*

<Target> Contributes to <Strategic Objective>: 68

### Improved via

*Relationship#31*

<Process> Improved via <Line of Action>: 16

### Included in

*Relationship#28*

<Development Area> Included in <Development Area>: 21  
<Enabling Objective> Included in <Enabling Issues>: 10  
<Process> Included in <Process>: 4  
<Service> Included in <Service>: 26  
<Stakeholder> Included in <Stakeholder>: 22  
<Strategic Objective> Included in <Strategic Issues>: 30  
<Strategic Principle> Included in <Strategic Issues>: 7  
<Theme> Included in <Theme>: 49  
<Trade-off Topic> Included in <Strategic Issues>: 4

### Introduced as part of

*Relationship#20*

<Acft. Enabler> Introduced as part of <Development Area>: 24  
<AOC Enabler> Introduced as part of <Development Area>: 4  
<Apt. Enabler> Introduced as part of <Development Area>: 29  
<ATM Enabler> Introduced as part of <Development Area>: 80  
<CNS Enabler> Introduced as part of <Development Area>: 20  
<Improvement> Introduced as part of <Line of Action>: 41  
<Oth. Enabler> Introduced as part of <Development Area>: 14

### Is enabled by

*Relationship#21*

<Improvement> Is enabled by <Acft. Enabler>: 61  
<Improvement> Is enabled by <AOC Enabler>: 13  
<Improvement> Is enabled by <Apt. Enabler>: 43  
<Improvement> Is enabled by <ATM Enabler>: 109  
<Improvement> Is enabled by <CNS Enabler>: 44  
<Improvement> Is enabled by <Oth. Enabler>: 13

### Is Required by

*Relationship#30*

<Stakeholder Need> Is Required by <Stakeholder>: 296

## Is Source of

*Relationship#18*

<Document> Is Source of <Acft. Enabler>: 21  
<Document> Is Source of <AOC Enabler>: 4  
<Document> Is Source of <Apt. Enabler>: 26  
<Document> Is Source of <ATM Enabler>: 71  
<Document> Is Source of <CNS Enabler>: 15  
<Document> Is Source of <Concept>: 1  
<Document> Is Source of <Concept Element>: 48  
<Document> Is Source of <Implem. Goal>: 33  
<Document> Is Source of <Improvement>: 41  
<Document> Is Source of <Line of Action>: 16  
<Document> Is Source of <Oth. Enabler>: 9  
<Document> Is Source of <Overall Objective>: 1  
<Document> Is Source of <Process>: 6  
<Document> Is Source of <Stakeholder>: 22  
<Document> Is Source of <Stakeholder Need>: 3  
<Document> Is Source of <Strategic Issues>: 1  
<Document> Is Source of <Strategic Objective>: 30  
<Document> Is Source of <Strategic Principle>: 7  
<Document> Is Source of <Target>: 61  
<Document> Is Source of <Trade-off Topic>: 4  
<Meeting> Is Source of <Stakeholder Need>: 274

## Is Theme of

*Relationship#16*

<Theme> Is Theme of <Stakeholder Need>: 392

## Service Needs to Address

*Relationship#10*

<Service> Service Needs to Address <Stakeholder Need>: 284

## To be Addressed by

*Relationship#29*

<Enabling Issues> To be Addressed by <Concept Element>: 12  
<Enabling Objective> To be Addressed by <Concept Element>: 19  
<Overall Objective> To be Addressed by <Concept>: 1  
<Stakeholder Need> To be Addressed by <Enabling Issues>: 2  
<Stakeholder Need> To be Addressed by <Enabling Objective>: 136  
<Stakeholder Need> To be Addressed by <Process>: 3  
<Stakeholder Need> To be Addressed by <Strategic Issues>: 1  
<Stakeholder Need> To be Addressed by <Strategic Objective>: 210  
<Stakeholder Need> To be Addressed by <Strategic Principle>: 14  
<Stakeholder Need> To be Addressed by <Trade-off Topic>: 34  
<Strategic Objective> To be Addressed by <Concept Element>: 79  
<Strategic Principle> To be Addressed by <Concept Element>: 23  
<Trade-off Topic> To be Addressed by <Concept Element>: 11

**Will apply**

*Relationship#24*

<Implem. Goal> Will apply <Improvement>: 44